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User Generated Content in Researching for Design: How the Internet supports creativity

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How the Internet supports creativity

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Abstract

This research started with the idea that the Internet is changing the way we gather knowledge and create content. The Internet was used to bring multiple points of views to interact and amplify each other within the design process. A complex approach helped understand the Internet as a system and consequently a platform for innovation. The Internet's open structure led to a rise of participative users exposing their needs, wants and solutions. Our research has studied this user generated content over the Internet and its relevance to the design process.

Creative users want to express themselves and to participate directly and proactively in the design development process. This research argues that designers have much to benefit from user generated content because users submit elements pertaining to all design spaces and reveal elements of the relationships present in a design situation under study. To learn more about this new content we ask: What type of information does user-generated content provide for researching for design? To further narrow the scope of this research, we also wondered: Is this information more pertinent to product design, service design or product service systems?

In a participatory like effort, our methodology was developed to learn how user generated content could influence the design process. To do so, we chose to search over the Internet for content concerning mobility via the use of an automobile. The three different media types we considered were videos on *YouTube*, images on *Flickr* and text entries on *Blogger*. To answer our first research question, we focused our attention on two elements when researching for design: design spaces and design relationships. Firstly, we categorized the content we gathered between problem, creative and solution spaces. Secondly, we categorized the content depending on which design relationship it portrayed, thus affecting a combination of users, objects and contexts. To answer the second question of this research, we examined design outcomes of three types: private automobiles as a product, car sharing program as a product-service system, and taxis as a service. Each element of pertinent user generated content found in our research was categorized until we collected 50 samples for every combination of variables. We ended up with a matrix where 50

elements of each design outcome had been collected in the form of each type of media and then categorized according to both design spaces and design relationships.

This study has shown that the Internet as a medium produces the right conditions for users to share a large quantity of original and diverse content pertinent to a design situation. From our data collection, we were able to identify some trends in user generated content. More importantly, we can affirm that user generated content provides pertinent information when researching for design in all design spaces and design relationships. The same results were found for the outcomes of design as content relevant to products, product-service systems and services were all available and pertinent. In summary, we found that the Internet supports creativity and thus thrives on creative user content.

Following in the path laid out by researchers in participatory design, this study should be considered as another example of a means for designers to perceive tacit needs by allowing for users to express their ideas. As the users create freely and intuitively while expressing their needs, solutions and ideas, the designers can have a third person point of view on the results. By combining techniques such as crowdsourcing and brainstorming, we have created a new activity and the neologism: *brainsourcing*.

With some perspective on the sum of the participants' ideas, the designers can better understand the complexity of the design situation. While remaining in a form of reflective practice, the designers can then reflect and add upon the users' generated content which is unbiased by a design education or design culture. This process is similar to the professional participatory design process where we introduce *brainsourcing* as a similar activity.

This research also raised the question whether the Internet could be democratizing the design process. Although users might not have the education and skills to be designers, they are democratizing the design process by participating actively and by exposing their needs, solutions and ideas. We determined that users weren't undertaking the whole design process like professional designers but we observed that they were particularly creative. In light of this relationship between creative users and designers, we reviewed common languages, like scenarios and prototypes, which are

present in the user generated creative content we collected over the Internet. This led to a new point of view on the design activity where creative opportunities come from engaging a conversation with the users.

This research has revealed many trends in the way users naturally communicate within a design process. In the end, we provided some insight on how designers can take advantage of all types of user generated content. In the future, we hope designers will be able to interact with participants while taking on the role of a facilitator of conversation, assuring the creative process is right. No longer are designers asking what products and services could be created, but why users would need it in the first place.

Keywords: Design research, complexity, participatory design, user generated content, democratization, Internet, creativity, crowdsourcing, brainstorming, brainsourcing, reflection-in-action.

Résumé

Cette recherche a débuté avec l'idée que l'Internet est en train de changer la manière dont nous créons des connaissances et du contenu culturel. Notre point de départ était d'utiliser l'Internet afin de rassembler et amplifier plusieurs points de vue dans un processus de design. Une approche complexe a exposé l'Internet comme un système et conséquemment comme une plateforme pour l'innovation. La structure ouverte de l'Internet a soutenu le mouvement participatif des usagers qui ont choisi de partager leurs besoins, leurs désirs et leurs solutions. Notre recherche a pour but d'étudier ce contenu généré par les usagers en ligne et comprendre sa valeur pour les designers.

Les usagers créatifs veulent s'exprimer et participer activement dans le processus de design. Notre recherche tente de démontrer que les designers ont beaucoup à apprendre du contenu généré par les usagers car ceux-ci soumettent des éléments qui ont attrait à toutes les étapes du processus de design et révèlent des relations présentes dans la situation de design à l'étude. Pour en apprendre plus sur ce contenu nous nous demandons : Quel type d'information offre le contenu généré par les usagers pour la phase de recherche dans le processus de design. Afin de centrer la portée de l'étude, nous nous sommes aussi questionné si cette information est plus pertinente au design de produits, au design de services ou au design de système de produits et de services.

Aspirant aux idéaux du design participatif, notre méthodologie fut développée afin d'apprendre comment le contenu généré par les usagers pourrait influencer le processus de design. Pour ce faire, nous avons choisi de chercher sur l'Internet pour du contenu qui concerne la mobilité via l'usage d'une automobile. Les trois différents types de média considérés étaient les vidéos sur *YouTube*, les images sur *Flickr* et les textes sur *Blogger*. Afin de répondre à notre première question de recherche, nous nous sommes penchés sur deux éléments lorsque l'on recherche pour le design : les espaces de design et les relations de design. Premièrement, nous avons catégorisé le contenu récolté selon l'espace problème, créatif et solution. Deuxièmement, nous avons catégorisé le contenu dépendant de laquelle des relations de design elle démontrait soit une combinaison d'usagers, objets et contextes. Dans le but de répondre à la deuxième question de cette recherche, nous avons examiné trois types

de produits de design : les automobiles privées comme produit, le partage de voiture comme système de produit et de service, et le taxi comme service. Chaque élément pertinent généré par les usagés trouvé dans cette recherche fut catégorisé jusqu'à ce que l'on récolte 50 échantillons pour chaque combinaison de ces variables. Nous en sommes arrivés avec une matrice de 50 éléments de chaque produit de design, pour chacun des médias, puis catégorisé selon les espaces de design et les relations dans le design.

Cette recherche démontre que l'Internet, comme médium, produit les conditions avantageuses pour que les usagers partagent de grandes quantités de contenu original et diversifié qui est pertinent aux situations de design. À partir de nos données de recherche, nous avons identifié des tendances dans le contenu généré par les usagers. Notamment, nous sommes en mesure d'affirmer que le contenu généré par les usagers offre de l'information pertinente à la recherche pour le design, et ce dans tous les espaces de design et toutes les relations de design. Il en fut de même pour les différentes issues du design car du contenu sur les produits, les systèmes de produits et de services et les services était présent et pertinent. Bref, nous avons démontré que l'Internet supporte la créativité et conséquemment il y abonde de contenu créatif produit par les usagers.

Suivant dans les traces dessinées par d'autres chercheurs en design participatif, cette étude devrait être considérée comme un nouvel exemple des moyens qu'ont les designers pour percevoir les besoins tacites des usagers en leur permettant d'exprimer leurs idées. Alors que ceux-ci créent librement et intuitivement ainsi exposant leurs besoins, solutions et idées, les designers peuvent porter un regard de tierce partie sur les résultats. Jumelant des techniques comme le *crowdsourcing* et le brainstorming, nous avons créé une nouvelle activité et le néologisme : *brainsourcing*.

En demeurant dans une forme de pratique réflexive, les designers peuvent réfléchir et ajouter au contenu généré par les usagers qui lui n'est pas biaisé par une éducation ou une culture du design. Ce processus est similaire au design participatif professionnel où le *brainsourcing* est une activité parallèle lorsque le designer fait des recherches pour le design. C'est cette perspective sur la somme des idées des participants qui peut contribuer à comprendre la complexité de la situation de design.

Cette recherche a aussi soulevé des questions par rapport à l'effet de démocratisation de l'Internet. Bien que les usagers n'ont pas l'éducation, ni les habiletés des designers, ils aspirent à démocratiser le processus du design en voulant participer activement et en exposant leurs besoins, idées et solutions. Nous avons pu déterminer que les usagers n'étaient pas qualifiés pour entreprendre le processus complet du design comme les designers professionnels, mais nous avons observé directement la capacité des usagers à mettre de l'avant leur créativité. À propos de la relation entre les usagers créatifs et les designers, nous avons étudié des langages communs tels les scénarios et les prototypes. Tous deux sont présents dans le contenu généré par les usagers que nous avons récolté dans nos recherches sur Internet. Ceci nous a mené vers une nouvelle perspective sur l'activité du design où des opportunités créatives ressortent d'une conversation avec les usagers.

Cette recherche a dévoilé de grandes tendances dans la manière dont les usagers communiquent naturellement dans un processus de design. Nous espérons avoir offert un aperçu de comment les designers peuvent prendre avantage de tous les types de contenu généré par les usagers en ligne. Dans le futur, nous souhaitons que les designers aient la possibilité d'interagir avec les participants en prenant le rôle de facilitateur de la conversation. La responsabilité du résultat ne tombe pas sur les épaules du designer car son mandat est d'assurer le bon fonctionnement du processus. Les designers rejoignent les usagers en ne demandant plus comment les choses peuvent être créées, mais pourquoi elles devraient exister. En tant que designers, nous aspirons à générer plus à partir de nouvelles connaissances, nous aspirons à créer plus de sens.

Mots clés: Recherche en design, complexité, design participatif, contenu généré par les usagers, démocratisation, Internet, créativité, crowdsourcing, brainstorming, brainsourcing, réflexion-en-action.

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List of Abbreviations

PD	Participatory Design
proPD	Professional Participatory Design
PSS	Product-Service Systems
CS	Crowdsourcing

Dedication

I would like to dedicate this work to my mother, for her courage and unconditional support.

Acknowledgements

First, I wish to thank Mr. Philippe Lalande, my research director, for guiding me diligently along this process. For the way in which he generously offered his valued time, his constant encouragement, his insightful wisdom, I am personally grateful. I would also like to thank Mr. Charles Colby for taking the time to listen to my concerns and for being an extensive ressource in terms of exchanges pertinent in developing this research. I thank Carmen Cucuzzella for the same type of discussions concerning the methodology of this research. I owe a special thanks to the Architect Giulio Ceppi with whom I worked closely while doing research at his design firm TotalTools in Milan. Lastly, I wish to thank all the inspiring teachers of the program of Design and Complexity at the University of Montreal from whom I have learned many great lessons that reach far past the boundaries of design.

Thank you all.

General Introduction

In 2006, when the German philosopher Habermas accepted a prize for the advancement of human rights, he commented on the way the Internet is changing the way we gather knowledge. The Internet has provided a space for an avalanche of user generated content. This sudden rise in user participation has created problems for both our professional media sources and our most valued cultural institutions by increasing the cacophony and thus weakening the value of online content.

> *"Use of the Internet has both broadened and fragmented the contexts of communication. This is why the Internet can have a subversive effect on intellectual life in authoritarian regimes. But at the same time, the less formal, horizontal cross-linking of communication channels weakens the achievements of traditional media. This focuses the attention of an anonymous and dispersed public on select topics and information, allowing citizens to concentrate on the same critically filtered issues and journalistic pieces at any given time. The price we pay for the growth in egalitarianism offered by the Internet is the decentralized access to unedited stories. In this medium, contributions by intellectuals lose their power to create a focus."* [1]
>
> Jürgen Habermas
>
> English link - German link

The Internet has created a debate on its use in the field of communications. Media companies have had to rival with user generated content, providing similar services to keep their core audience. One of the main critiques is that, when unconstrained by professional standards or editorial filters, anonymous amateurs aren't held responsible for the quality of the information that they are distributing to such a large audience[2]. By editing an entry on Wikipedia, publishing a blog or posting a video on YouTube, the distinction between trained expert and passionate amateur is increasingly blurred. If everyone is simultaneously broadcasting themselves, who is listening? In my view, today's Internet is changing the paradigm of mass communication to micro participation.

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[1] Habermas, J. (2006) Acceptance speech for the Bruno Kreisky Prize for the Advancement of Human Rights, March 9, 2006.

[2] Keen, A. (2007) *The Cult of the Amateur: how today's Internet is killing our culture.*

Secondly, it is the creative institutions that have been affected by kleptomaniac, cut-and-paste and self-broadcasting Internet culture. The very foundation of intellectual property is being questioned when content is freely: downloaded, remixed, published, aggregated and consumed. Moreover, the manner and frequency with which intellectual property is being undermined over the Internet is distorting and reshaping our values and consequently our very culture. The Internet has become a unique place where audience and author have become one. As a result, culture has been either converging towards a unique source or diverging into multiple niches. Is the Internet democratizing access or creating unfertile grounds for future culture?

Simply put, an amateur is a person who is fond of something. An amateur is a hobbyist, knowledgeable or otherwise, someone who does not make a living from his or her field of interest. With the help of the Internet, groups of amateurs are forming the digital equivalent of online gated communities where they share identical views. As an author on Internet trends, Keen has discussed the downfalls of the amateurs taking over the Internet. He states that the conversations amongst these enthusiasts are mirrored within the group in a way that is reassuringly familiar[3].

Paradoxically to the idea of aggregated communities of the like-minded amateurs, one person's truth becomes as true as anyone else's. "*In this era of exploding media technologies there is no truth except the truth you create for yourself.*"[4] The Internet is dividing the world into parcels of personalized truths, each seemingly equally valid and meaningful.

One way to look at this phenomenon of user generated content can be as a data miner's dream. The more we reveal ourselves through our YouTube videos, our Flickr images, our personal blogs, the more vulnerable we are to data miners. The confessional nature of user generated culture is resulting in a cultural explosion of personal, social, and political self revelation. In parallel, more and more technical barriers and even copyright laws are being built to prevent this information from being used negatively. However, a different perspective can be taken on this debate.

[3] Keen, A. (2007) *The Cult of the Amateur: how today's Internet is killing our culture.*
[4] Edelman, R., (2000) "Liquid truth: Advice from the spin masters".

The angle that we choose to adopt focuses on the positive aspects of the Internet that Habermas was discussing. He alludes to the power of democratization of the Internet with its "subversive effects", "decentralized access" and "egalitarianism". What we are proposing is that all this information from user generated content can be used positively when researching for design.

More than ever people want to participate proactively in the design process. In many domains, users have already become active in modifying or creating solutions for themselves to satisfy their needs and desires[5]. Contrarily to Keen's pessimist point of view on the participatory aspects of the Internet, we wish to argue that the Internet can be a fertile ground, enabling large numbers of users to become active in generating content. This research was conducted to better understand the relationship between the simplicity of user participation over the Internet and the pertinence of that content for the design process. To do so, we will study user generated content over the Internet in a form of crowdsourcing in the initial phases of the design process.

What is crowdsourcing?

Crowdsourcing is a phenomenon that started in 2006 where many people accomplish a task over the Internet. Crowdsourcing is a part of the broader web 2.0 phenomenon that has been giving users the opportunity to participate and play a role on the web. Different from the initial websites with fixed and pre-establish content, the web 2.0 model is heterogeneous, ad-hoc and evolutionary. But above all it is pragmatic and robust, allowing tools and applications to evolve naturally alongside each other, shaped by the communities that they serve[6]. One novelty of web 2.0 is that it allows for gathering a collective intelligence, turning the web into a global brain[7]. In other words, web 2.0 websites like Wikipedia are putting into practice the idea of user generated content by building a centralized collection of knowledge on the web.

To uncover the relationships that allow for crowdsourcing to take place, we have established three essential poles. Increasingly, **participating users** have taken over the **Internet**; thanks to the web 2.0 websites. But crowdsourcing only takes place when a third element is

[5] Von Hippel, E. (2005) *Democratizing Innovation*.
[6] Millard, D.E. & Ross, M. (2006) "Web 2.0 Hypertext by any other name?"
[7] O'Reilly, T. (2005) "What is web 2.0?"

introduced in the relationship: when this participation is oriented towards a **project**. As users participate in projects, the development is creating content. On the other side of the equation, when the Internet is used to support projects, it serves as an aggregator of knowledge. Therefore, another way to see crowdsourcing is the aggregation of created content amid web 2.0 activities. Can crowdsourcing integrate the design process?

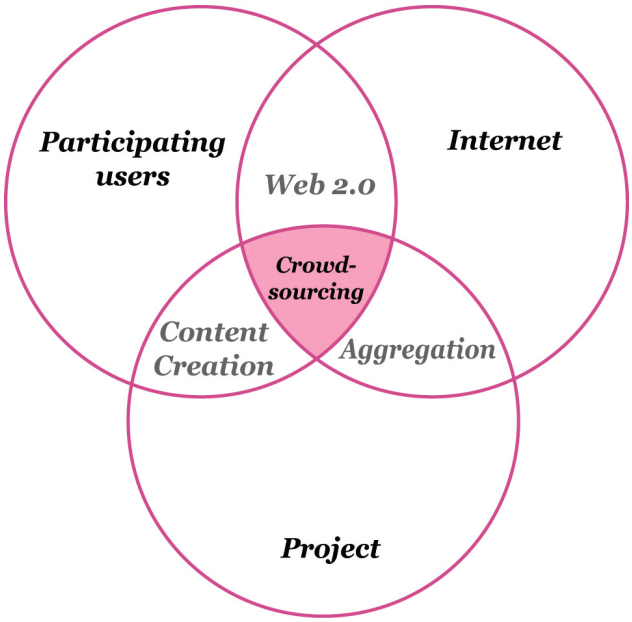

Figure 1: The three poles of Crowdsourcing.

In the earlier stages of the design profession, designers have relied heavily on the expertise of others by referring to textbooks, standards, legal constraints and especially previous design efforts. Today, there is so much knowledge to be contextualized that there needs to be more people included into the design process. We live in a time of distributed cognition. Aggregating points of view becomes a necessity as specialization increases. This research looks to address this problem by proposing a method for taking advantage of user generated content in the initial phases of design.

How did we structure this research thesis?

In the first chapter, we will explore how the Internet has been breeding change by drawing parallels with the field of complexity. We will reveal how complexity and constructivism has strongly influenced the foundations of our own research. With this approach, we will revisit the phenomenon leading our initial research questions on user generated content in design:

What type of information does user-generated content provide for researching for design and is this information more pertinent to product design, service design or product service systems?

To answer these research questions, the second chapter will build the theoretical foundations in design on which we will conduct this study. We will describe researching for design in terms of the problem, creative and solution spaces as well as in terms of the relationships between users, objects and contexts. Also, we will distinguish products, systems and services as three different design outputs.

The objective of the third chapter is to present our methodology. Inspired by participatory design methods, we will propose a methodology for the purposes of answering the two founding questions that shape this research with user observation techniques and by collecting and categorising user generated content.

In the fourth chapter we will answer the research questions by comparing and contrasting the results obtained in our field research. The foundations that we have established in chapter 2 will create a base for interpreting the role of each variable in our results. Finally, we will propose ways to use this information in researching for design.

The final chapter proposes to reflect upon the consequences of this study in terms of the opportunities provided by the Internet as described in the first chapter. By looking back on our research on user generated content, we will provide insight on how the Internet is affecting the design process. Moreover, we will discuss how this broader perspective on user participation can influence the role of the designer. Lastly, we will elaborate on how this relationship between users and designers is changing the way we perceive the very activity of design.

1. The complexity of the Internet

In this chapter, we will review how complexity was an integral part in developing this master's project. Beginning in the early 1960's, complexity is a relatively new field that branches out in two different forms. Under the name of constructivism, complexity proposes an epistemology for generating knowledge during the development of a project. Secondly, complexity proposes itself as a field of study on its own, as a science that studies systems. Both perspectives were useful in the case of this research-project and we will discuss how they were put into application.

Firstly, we conducted this research on user participation in researching for design inspired by the complex approach of thinking and acting at the same time. In a form of meta-methodology, complexity was helpful in defining the researcher's point of view and creating a model to identify the relationships at play in this research. We speak of meta-methodology because we need to distinguish between the constructivist methodology of this research-project as a whole – defining the problem, reviewing the literature and developing a project – and the mechanist methodology that will be discussed in chapter 3 to precisely answer our research question.

Secondly, we will illustrate how this complex approach helped understand the Internet as a system. After a brief history of the founding fields of complexity, we will explore the facets of complex systems to reveal the similar characteristics of the Internet. The second part of this chapter will further focus on showing how the Internet is a platform for innovation for 2 reasons: its structure and its openness.

Thirdly, we will dive deeper into the heart of this master's subject of study: User participation over the Internet. Using the Internet as an innovation platform, the rise of user participation is explained on three scales: on a macro level with professional amateurs, on a meso-scale with crowdsourcing and on a micro-scale with participative web activities. In the end, many people have begun to speak out about their wants and needs, using the Internet to differentiate themselves. As simple observers, we have access to an incredible amount of user-generated content yet no study has shown its pertinence for design purposes. This

leads us to the conclusion of this chapter where we propose a research question to better understand user participation researching for design with Internet content.

1.1 What is a complex approach to design research?

In the beginning of the notion of complexity, the closed institutional and research models of the "hard science" disciplines of mathematics and engineering ironically didn't permit the notion of complexity to reach out to other disciplines like biology and social sciences. In parallel to the evolution of traditional scientific disciplines, the design field has been evolving rapidly. In the last decades, design research has been moving from positivist, mechanist methods of research to the constructivist and complex approaches. The constructivist approach differs from the positivist methods by accepting that multiple points of view can shed light on a single issue. In resonance with the constructivist approach to creating knowledge, Bonsiepe states that "the sciences approach reality from the perspective of cognition, of what can be known, while the design disciplines approach reality from the perspective of "projectability"[8].

Seeing the world as an object to be built is the first step to understanding and working with the concept of complexity. To tame such complex problems then requires more than a logical approach. In fact, complexity looks to unite and transcend by superimposing itself to the Cartesian positivist methods of gathering scientific knowledge through division and analysis. With this complex point of view, the design methodologies have evolved to include more of the instability and relationships created in everyday life[9].

The design process has introduced itself into the complex school of thought for two reasons. Firstly, it has come in opposition with the dictatorial approach of modernist designers.

> *"The design profession is no longer to be limited nor represented by the capacity of a single expert mind or of a team augmenting such a mind. A single mind trying to design for the variety of a million minds has to reduce us all to numbers and not people."*[10]

[8] Bonsiepe, G (2006) "Design and Democracy".
[9] Jones, J.C. (1980) *Design Methods.*
[10] Simon, H. (1963) *Sciences of the artificial.*

Secondly, in the earlier stages of the profession, designers have relied heavily on the expertise of others in an effort to understand and contextualize existing knowledge. And, because of this abundance of knowledge, more people need to play a role in the design process. That's why divisions of labour and collaborative strategies have been created to accomplish tasks more extensive and complex than any individual could accomplish[11].

Both of these benefits or ideals of the complex approach will be put into action in this research. This research is conducted in an effort to take into account the already available content of online users and question the democratization of the creative design activity to more than expert designers.

1.1.1 What are the four dimensions of the constructivist projects?

Another great thinker behind the complex approach is Jean-Louis Lemoyne. In contrast to Descartes reductionism, he has described the constructivist epistemology as studying a phenomenon as a projected construction of the observer[12]. In other words, the subject constructs the object of study within a project[13]. The relationship between the subject and the object now includes the once objective and detached observer. In a constructivist approach, the observer or researcher is implicated in the project and can actively influence the object of study. Moreover, this constructivist approach has led to better understanding systems. In point and fact, systems have been defined as something identifiable (system) which is in something (environment) for something (project) does something (function) by some thing (structure) which transforms in time (evolution). From this, the four dimensions of systems have been identified: subject, object, project and environment.

[11] Idem
[12] Lemoyne, J-L, (1990) *Les épistémologies constructivists.*
[13] Bousbaci, R. & Findeli, A. (2005) "More acting and less making" .

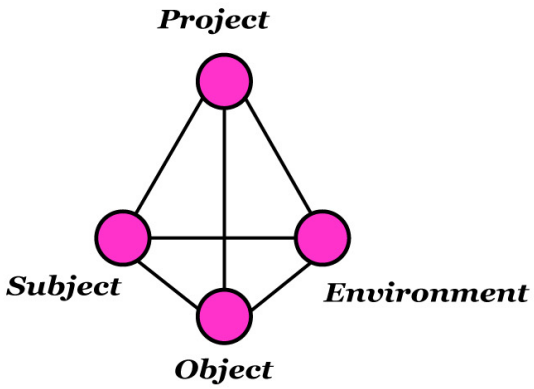

Figure 2. Four dimensions of constructed systems.

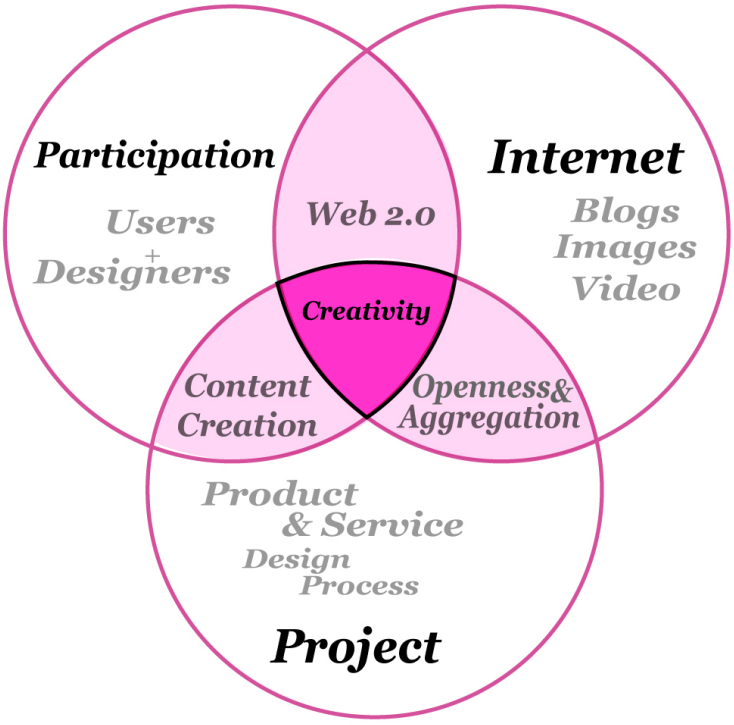

Figure 3. Theoretical Framework of Participative online users in design research

To illustrate the theoretical structure of this research, we have taken the time to explore the relationships that are present amongst the dimensions at play. We have chosen to portray the three bottom dimensions of the tetrahedron. Therefore, the subject of this research will be the participative users and designers, the environment will be that of the Internet and the object of study is design research for products and services.

1.1.2 How did the field of complex systems begin?

The leading thinker behind the study of complexity is Edgar Morin. He dates the notion of complexity to the early 1950's where the first connections were made between cybernetics, systems theory and information theory. Consequently, the notion of complexity emerged[14].

Even with its foundations in cybernetics, systems theory and information theory, complexity is still hard to define precisely and concisely. Complexity is certainly not to be interpreted as something that is simply "complicated" but rather as that which is constructed of many related parts. In 1962, Simon sidestepped the daunting task of defining complexity by stating that the property of a complex system refers to the large number of parts that interact in a non-simple way[15]. Having studied the evolution of science and systems theory, Checkland states that complexity is present when there are more variables than one scientist can manage[16]. He also professes that to study such systems, complexity must differentiate itself of the mechanist way of reductionism by attempting to create relationships amongst entities. Likewise in this research, the importance of complex systems will come from its emphasis on the relationships between the elements more than on the elements themselves.

1.1.3 What are the founding principles in complex systems?

The founding principles of complex systems are the dialogical principle, the organizational recursion principal, and the hologrammatical principle[17].

The **dialogical principle** concerns the antagonistic and simultaneously complementary relationships within a system. The paradoxical interrelationship of phenomena creates a balance within the extremes of the system. For example, at the same time a system can

[14] Morin, E. (1990) *Introduction à la complexité*
[15] Simon, H. (1962) "Complexity in architecture".
[16] Checkland, P. (1981) *Systems Thinking, Systems practice.*
[17] Morin, E, (1990) *Introduction à la pensée complexe.*

manage order and disorder. In fact, the notion of order does not exist without the notion of disorder.

Secondly, the **organizational recursion principal** allows for the system to regenerate itself, maintain itself, while at the same time influenced by its surrounding environment. This principle is also known as auto-eco-re-organization, where “auto” refers to self-regulation, “eco” refers to its relationship with the environment, and “re” refers to recursive regeneration. For example, the organization of life on Earth is self regulated and highly dependent on the relationships within its environment. The Earth has been regenerating itself, with itself, ever since its first appearance.

Lastly, the **hologrammatical principle** states that the whole is expressed within each part, and inversely, the parts express the whole. Therefore each dimension contains within it all other dimensions. This principle is widely used in the field of mathematics under the name of fractal theory. Similarly, DNA contains all the genetic information that is manifested in a human being, and likewise a human being expresses all the genetic information contained in DNA.

1.1.4 How does the Internet follow these three complex principles?

The Internet can be deemed a complex system because it follows the three previously described principles.

The Internet manages antagonistic and complimentary relationships in multiple ways. There are websites that are built for user participation where anyone can submit a video, and there are websites that showcase proprietary content. Some e-mail providers are free but they include advertising and some e-mail services are to be purchased yet without advertising. It is these very paradoxes that allow for the system to cater to all types of uses and users.

The WayBackMachine.org is an Internet website that can go back in time and show what a webpage looked like in 1996. Google also keeps cached copies of websites to better understand how sites evolve. Thanks to the nodal form of its network, the Internet’s ability to reorganize itself allows it to remain a functional system as a whole in spite of large scale malfunctions. These two examples show that the Internet as a whole shows signs of auto-

eco-re-organisation. It can auto-regulate itself thanks to HTML language which evolves according to the advances in technology, meanwhile addressing the needs that are present in the real word.

Lastly, it is not difficult to understand that the sum of all the websites make up the Internet as a whole. Although unlikely at first, the reverse is equally possible. The entirety of the Internet is available in one browser. One can access the Internet thanks to the browser that reads the HTML language like a cell would read its DNA.

Now that we have shown how the Internet manifests all the characteristics of a complex system, we will look further into how the Internet is fostering innovation.

1.1.5 How is the Internet a system for innovation?

In this section we will illustrate how the Internet is designed to support innovation and enable new ideas. No modern phenomenon better demonstrates the importance of open structures for creativity and its ensuing innovation[18] than the Internet. The Internet has provided for the world's greatest demonstration of the power of freedom because of two distinct characteristics: its structure and openness.

The **structure** of the Internet can be described both vertically and horizontally. From a vertical point of view the layers of the Internet refer to the entire communication system. At the bottom is the physical layer, comprised of wires and servers across which information travels. Secondly, there is a logical or code layer where software controls the hardware. At the top is a content layer, where images, texts and information are created and displayed.

On the other hand, the horizontal structure of the Internet is more complicated. The Internet is based on a network architecture that favours innovation for three reasons.

Firstly, applications run on computers at the **edge of the network**. Innovators with new applications need only to connect their computer to the network to let their applications run. This does not imply a change for every computer within the network. For example, if

[18] In this research, we use "innovation" in its broad meaning, yet our focus is on the creativity from which innovation takes root.

someone wanted to create a new online telephone application, they can do so without imposing a change in the whole network.

Secondly, the architecture of the Internet is **not optimized** for any particular existing application. The Internet has no dominant purpose to which its resources are to be focused. Therefore, the network remains open to innovation not originally imagined. In cases where the future is uncertain, like with the uses of future technology, leaving the platform uncontrolled is a better way of helping it find the right sort of innovation.

Thirdly, the Internet's architecture remains a **neutral platform**. Neither discrimination nor preference is enforced upon any information source. This neutral platform allows for innovators to develop any idea or application, no matter whether good or bad. Again, it is because innovators do not require the permission of any governing body or the authorization of any software program that they can propose solutions using the Internet in original ways.

The second factor that drives innovation over the Internet is its **openness**. The openness of the Internet refers to a common, which is a resource that is free. The Internet is held in joint use or possession and can be enjoyed equally by a number of people. Commons also do not require obtaining the permission to use the resource. A distinction is to be made between rivalrous and nonrivalrous resources. For example, the beach is a rivalrous common because if everyone tries to use it, their usage rivals someone else's. However, the use of a quote is nonrivalrous. It is important to value the Internet as an innovation common. Through its norms and a specific technical architecture, the Internet creates a space where one person's use does not impede another's.

Because of the openness of the Internet, the creativity of online users is expanding and reaching extraordinary ranges of culture and commerce. That is to go from a life of a consumer to a life of a "prosumer" where one can individually and collectively participate in answering needs. Digital technology could enable a whole generation to take part in the creative process and thereby generate content in a myriad of mediums: remixed films, new forms of music, digital art, new kinds of storytelling, written expression, poetry, criticism, political activism. The infrastructure that is the Internet now allows for aggregating that creativity with others. This could become a research strategy for designers.

Put together, this **open structure** of the Internet led the way to creating an innovative atmosphere in its content layer. The Internet's architecture made it possible for developers to create applications themselves which allowed for users to demonstrate their innovations. For example, the developers behind the website YouTube took advantage of the Internet's neutrality of content and decided to grant users the same neutrality in uploading their content. The Wikipedia website took advantage of the fact that a user on the edge of the network can create or modify a webpage without having to affect all the other pages on the site. And finally, blogs aren't optimized for publishing any dominant subject or style of information. That's why some people use blogs to post images of their cats, and others to host political debates. The modular design of the Internet facilitates its own evolution and the subsequent evolution of complementary businesses as well as fostering new opportunities of commerce. Now that we have seen how from a technical standpoint Internet has been nurturing innovation and creativity, we will direct our attention to the social movement where people are participating over the Internet.

Introducing change is difficult to manage. There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things.[19] This risk of initiating change is very present in new product development. To avoid costly product failures, companies are starting to integrate users into the design process and ask for their commitment to purchase early on[20]. For one thing, customers are now empowered with greater access to information so that many want to have a greater say about the products they purchase[21]. Not surprisingly, then, studies have found that timely and reliable knowledge about customer preferences and requirements is the single most important area of information necessary for product development[22]. Basically, people want to take part in the product development and avant-garde companies are finding ways to let it happen. So far, this has happened in the types of situations where users find themselves in small heterogeneous markets and where little user experience exists[23]. The studies of researchers like Von Hippel and Pillar have established that users that have already been active in creating solutions for themselves to answer their needs and desires. Consequently, this research was conducted to better understand the equation of the

[19] Machiavelli, N. (1515) *The Prince.*
[20] Pillar, F.T. & Ogawa, S. (2006) "Reducing the risk of new product development" .
[21] Idem
[22] Idem
[23] Von Hippel, E. (2005) *Democratizing Innovation*.

simplicity of participation over the Internet with the user's capacity to innovate based on personal experience. What are these users generating as content with their everyday experiences?

From this social perspective, the Internet has also proven to be a fertile ground for enabling large numbers of users to become active in generating content. We will now move to directly study the foundation of participative users.

1.2 Why are users participating online?

In 2006, Time magazine's person of the year was: "YOU!". They were referring to people participating over the web. This establishes the presence of a critical mass of user participation online. One of the consequences of the user generated content is a change in the nature of the interactions between individuals over the Internet. This exemplifies the shift from the cathedral like practice of one person speaking to the masses to the network of individuals all taking part in a bazaar[24]. In business terms, the offer and the demand are becoming more specialized, creating a greater market in each of the niche products and services[25].

This section is concerned with user participation in various online activities. To understand this new phenomenon, we approached the subject on three scales: on a macro level with the rise of participation, on a meso level with crowdsourcing, then on a micro level with the different types of actions that participation allows.

1.2.1 Macro : The rise of participation

After the rise of the liberal professions in the 20th century, we are now witnessing a shift. Simplifying technology and access to information has created the rise of educated amateurs. What is being called the "Pro-Am"[26] revolution is a phenomena that shows how enthusiastic amateurs, pursuing activities to professional standards are having an increasingly important role in our society and economy. This movement has come from the bottom-up self-

[24] Raymond, E.S. (1998) "The Cathedral and the Bazaar".
[25] Anderson, C (2002) "The Long Tail".
[26] Leadbeater, C., & Miller, P. (2004). "The Pro-Am Revolution: How enthusiasts are changing our economy and society".

organisation of large quantities of pro-ams leading to a critical mass of people and knowledge in space and time.

Pro-Ams are the ones who seem to know everything about their passion. Thanks to the Internet, they have access to widely available information and the specific know-how required to invest themselves and their earnings to master their activity of choice. So much so, that designers have begun to create niche products targeting Pro-Am users. One can look at the wide array of tools that have been initially developed for professional cooks, housing contractors or even photographers that find themselves in the hands of serious amateurs.

Today, designers are looking to engage with the pro-ams that are developing the activities that relate to their products. However it has been common practice for companies' marketing departments to have already established such relationships with their customers to get to know what they were thinking. But now designers want to know what they're tinkering.

The simplest example of the real impact of amateurs taking on the role of professionals can be seen in the photography industry. The level of training has been reduced considerably because the technology has advanced significantly and has become so simple to use. So much so, that stock photography sites are now paying amateurs for their quality images. The stock photography industry has been just one of the sources for new pro-am trends over the Internet.

What is important to gather from these examples are the underlying trends. In this case, stock photography was the basis for discovering crowdsourcing which happens when companies are trying to leverage the generated output of the pro-ams towards accomplishing a task.

1.2.2 Meso: Crowdsourcing principles

Enter crowdsourcing, a 2006 Internet phenomenon. Crowdsourcing is the action of asking large amounts of people to accomplish tasks using the Internet as a network. The neologism "crowdsourcing" was coined in the context of businesses outsourcing specialized tasks to amateurs over the web. Now the productive potential of millions of online amateurs is

attracting the attention of businesses and professionals[27] . In the end, solutions could come from the productive potential of millions of plugged-in enthusiasts [28].

By collecting the input of the public online, crowdsourcing allows for a problem to be handled by virtual crowds, then rewarding those with the best ideas. These problems are divided into tasks that can vary from the more specific like transcribing the spoken words of a podcast, to the more general like taking a picture of a dog. Some tasks can even be poetic and abstract like drawing happiness.

In stride with the rise of professional-amateurs, participants who are taking part in crowdsourcing do not consider it as work because to them leisure isn't passive consumerism but active and participatory [29]. By crowdsourcing the creativity of pro-ams this is in fact including them into the design process. They get involved and enthused by showing off their knowledge and skills publicly. Sometimes they can reveal inside information that has involved sacrifices and frustrations never considered before. The question is now how do designers interact with pro-ams?

Crowdsourcing embodies a complex principle where the average response of a large group of people is nearly always better than any individual's answer [30]. According to this concept of the collective wisdom of crowds, large group of diverse individuals will come up with better and more robust forecasts and make more intelligent decisions than even the most skilled decision maker[31].

This thought is an argument for aggregating the knowledge of many people. And that's the subject of the book the *Wisdom of Crowds* by James Surowiecki. In some ways, the idea that more heads are better than one is at the foundation of this theory and this master's on design research. There are many different ways of harnessing the knowledge of crowds proposed in the book. We will briefly review these ideas while applying them to design

[27] In 2006, Jeff Howe exposed in Wired magazine the concept of crowdsourcing by looking at how amateurs with digital cameras affected professional photographers.
[28] Howe, J (2006) "Crowdsourcing".
[29] Crowdsourcing is possible because of the rise of Professional Amateurs. With open source ideals, they get involved in publicizing knowledge and skills to the greater public. This way, other amateurs can learn and train to become Pro-Ams.
[30] Surowiecki, J. (2005) *The wisdom of Crowds.*
[31] Idem

thinking. Through crowdsourcing, one of the opportunities is to begin studying how group wisdom could impact design research.

Diversity is part of human nature. We are all unique and different. In design, diversity tends to study as many points of view possible, bringing the maximum amount of marginal or innovative ideas to the table.

Independence is the base of democracy. Everyone is entitled to their opinion. There should also be a place for everyone to discuss and debate their points of view. In design, independence is steering clear of paradigms and listening to your own senses.

Decentralization is about making sure people's local knowledge is valued. It concerns itself with culture which is very present in design. Cultures having different ways and traditions to get the same tasks accomplished. There is a great source of new and exciting ideas to be explored and developed thanks to the decentralization criteria.

Aggregation is what unites all the different inputs into one single space. In design, it's where the sum of the parts makes a whole.

We have established that crowdsourcing is the part of the web 2.0 phenomenon that has been giving users the opportunity to participate on the web. We see crowdsourcing as the aggregation of created content during web 2.0 activities. This leads us into the next section where we look at what these participative activities are.

1.2.3 Micro: Types of online participation activities

A study[32] published in April 2007 revealed many statistics of current online participation. When looking at these early figures, we must take into account that online participation has only become truly mainstream after 2006. Nonetheless, the next three graphs will show the levels of participation in social media, the percentage of submitters versus viewers and finally the different types of participation that online users can partake in.

[32] Hempel, J (2007). "Web Strategies That Cater To Customers". Business Week, Inside Innovation.

1.2.3.1 Social Media Usage vs. Web Traffic

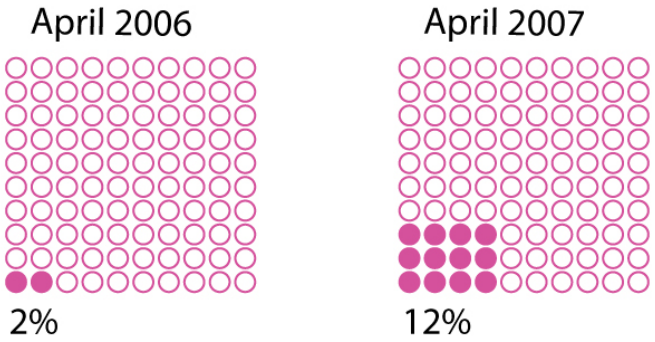

Figure 4. Social media usage vs. Web traffic

This rise in online participation has been foreshadowed by the pro-am revolution. Simply put, the same mechanisms are at play, but in an online arena. There is the same will to create bottom-up self-organisation of large quantities of pro-ams leading to a critical mass of people and knowledge in space and time. Another example of the rise in participation has come from Times magazine naming the people who participate online in web 2.o as the person of the year. Although this graph is meant to show the progression of over 600% growth in one year, the second information that is provided is the percentage of online activity related to social media compared to the total web traffic. Therefore 12% of all online activity is a beginning point for measuring participation.

1.2.3.2 Content Creation per Visit

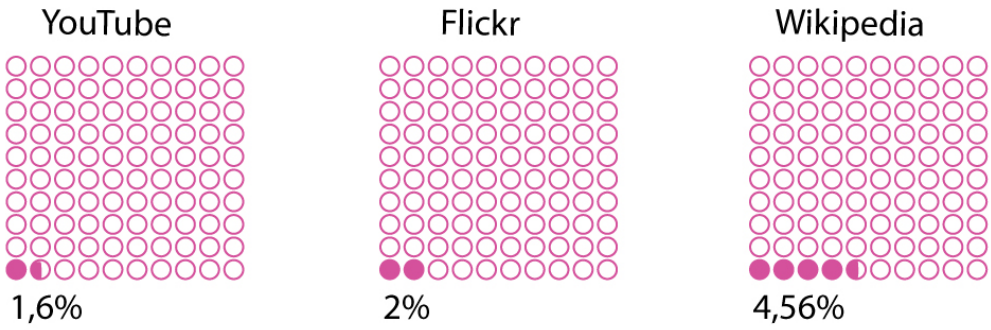

Figure 5. Content creation per visit

Comparing the amounts of time people visit a site to the amount of times people have created content is not the most pertinent way to gather active participation levels. It seems only logical that people simply watch videos 98,4% of the time they go to YouTube. The same goes for looking at pictures on Flickr. The case of Wikipedia differs because the original content, text, can be more easily modified.

A better understanding of the participation levels would come from comparing the amount of content creators to the amount of users. Of course, this is more difficult to keep a track of since some visitors aren't registered users. By comparing registered users that have uploaded a video to those who haven't would probably paint a very different picture.

There is another piece of information that overshadows this comparison between active content creation visits and passive content contemplation visits. The sheer amount of online content is so prevalent that the need for creation of new content hasn't been felt.

This graph seems to show that very little amounts of users create content. This is not entirely true. Even if 0,16% of visits generate content, the sheer amount of total visits is unfathomable. Even at 0,16% of content creation per visit, YouTube now holds more than 69 millions videos.

1.2.3.3 Participation Activities

The different types of participation show a great variety in the activities that are taking place in web 2.0. The most relevant type of participation to this research is by far the creators. They are the creating content that could be helpful in design research. Critics can also play a role in design research by pointing out the faults and describing their needs. Collectors would be the role of the design researcher that would amass the information and translate it into meaningful content in a project. Joiners are people who use networking sites but that type of activity shows more interest for studying markets. Spectators are completely passive and the only piece of information they offer to design research is in number of views. When large amounts of spectators watch a video, therein lies some interest. Of course, inactives are excluded as they do not provide any content to be studied in design research.

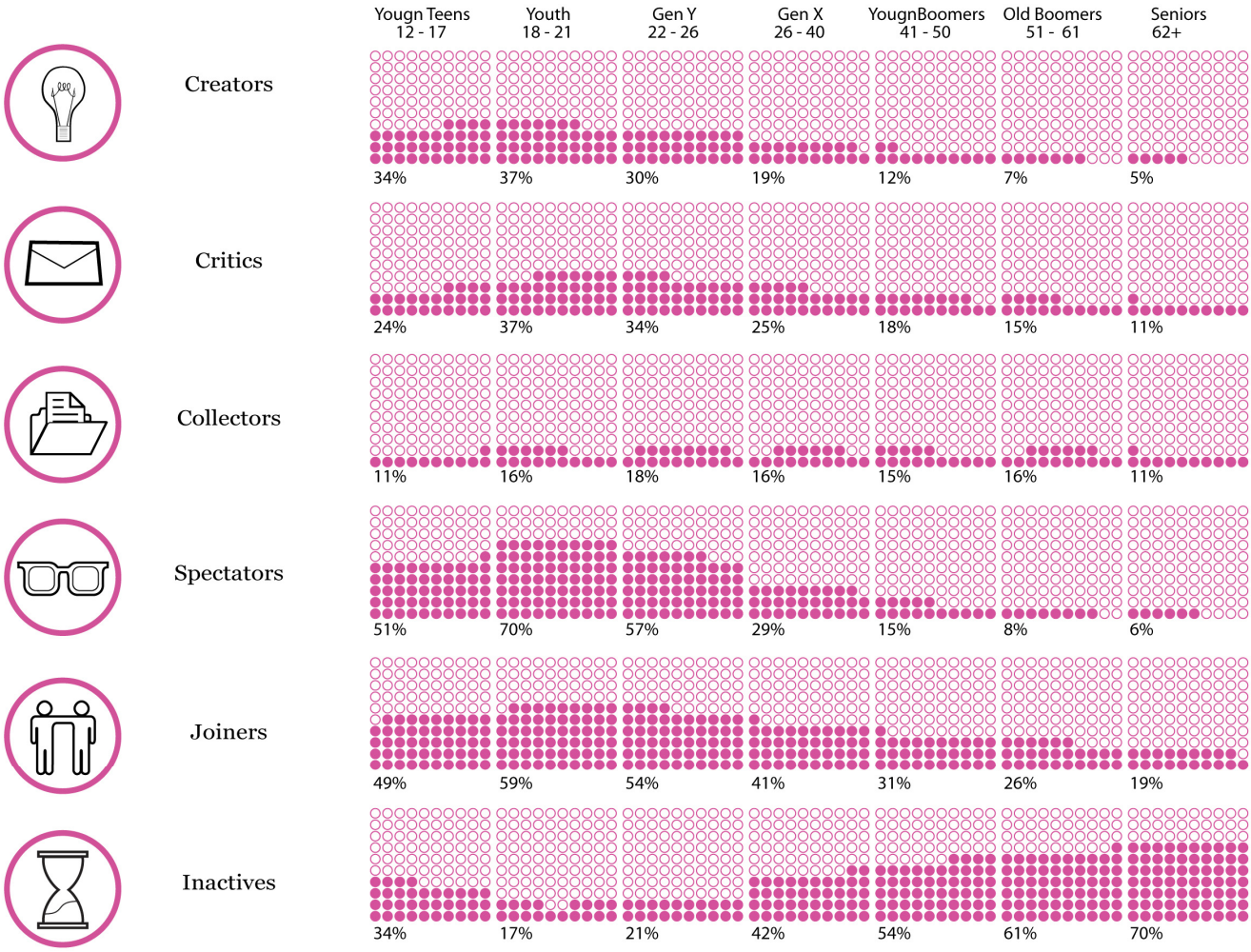

Figure 6. Participation Activities by online users.

Accompanying these types of participation, an annexed graph shows the basic demographics related to each type of participation. Basically, we can observe that after 27 years of age, the participation levels decrease. To answer the question of how many people participate actively versus passively, we now have some figures. Of all the people online, 40% on average are spectators, and 21% are creating content. So in general, nearly half the people on web 2.0 sites are creating content.

Although it is of great implication to think that one out of two people submit personal content online, we didn't focus on the quantitative aspects of participation, nor the demographics of

this participation. Those would be two other studies. We are more interested in understanding the potential of user-generated content for design research.

To sum up, theses three graphs have demonstrated important elements in online user participation. Firstly, we are in the initial burst of web 2.0 participation and levels of participation are rising exponentially. Secondly, so many people are visiting the sites that it makes it look as though not many people are submitting content. And lastly, active participation can be split up into 5 different types: creators, critics, collectors, joiners, spectators. Now, that companies want to take part in this new field of social media, we are looking to study this participation.

1.3 What will this research entitle?

So far in this thesis, we have established the influence of the complex design in providing an approach to this research and an understanding of systems. Complexity has proven to structure this research by studying the relationships amongst the subject/object/project/environment. In addition, the characteristics of complex systems have shown that the Internet is dialogical, recursive and hologrammatical. This led us to further question the link between the Internet and complex design.

The open structure of the Internet has revealed to be a conductor of innovative practices. The 3 communication layers create an elaborate network that is neutral, unspecific and open-ended. Basically, the Internet is a system built to support innovation. For the most part, innovation has come from users. The greatest revolution over the Internet has been the advent of online participation.

With roots in the pro-am movement, large numbers of users have begun to take over the net for their own purposes. Crowdsourcing is a prominent example of how this participation can become a means to an end. Moreover, the rise of online participation has taken on the form of many different types of activities like creating user-generated content.

With respect to our current research and experimentations with online crowdsourcing efforts, the early stages of the design process have been the most potent phase of the design process for integrating the user-generated content. We propose to research the possible impacts of this user-generated content for the early stages of design process.

This study begins by wanting to learn more about this new content: **What type of information does user-generated content provide for researching for design?**
Secondly to further narrow the scope of this research, we have decided to focus our attention on determining: **Is this information more pertinent to product design, service design or product service systems?**

To answer theses questions we must first define the elements of study. The next chapter will lay the foundations by exposing the key elements in design research as well as distinguishing product design, service design and product service systems.

2. Researching for Design and Design Outputs

In this second chapter we will dive deeper into the design research methods. The general objective of this chapter is to create a foundation of knowledge about design research to serve as a reference when analyzing the possible impact of user generated creative content. To create this foundation, two building blocks need to be thoroughly established: the researching for design and types of design outputs.

The first half of this chapter focuses on the three elements that are present when researching for design: users, products and contexts. It is by studying the relationships amongst these three dimensions that the needs and experiences to be fulfilled are mapped out. This exercise orients the idea generation process by moving from the problem space to the solution space through the creative space.

The second half of this chapter will distinguish different types of design outputs in order to investigate what part of our research can affect the design processes most pertinently. The three outputs that we have chosen to differentiate are products, services and the middle ground of product-service systems. After defining each type of design output, we look at how they manage the relationship between problem and solution spaces. Then, we approach each output in terms of innovative possibilities.

This chapter concludes with a matrix that unites the information gathered in the first and second parts of this chapter. By confronting design research within the types of design outputs, we set the stage for analysing the results of the collected content.

2.1 How do we research for design?

Before we begin, it is important to reiterate the subtle differences in the expression “design research”. In fact, the addition of a conjunction to the expression orients the possible meanings. Research into design is the most widely spread as it refers to the other sciences like sociology or psychology studying the design process. In our present case, the meaning that applies is research for design where knowledge is gathered with the intent of using it in the practice of designing. Finally, research through design or research by design studies the design process by actually undertaking a project. In such a case, complexity is an

epistemology that can be applied to offer insights into the theoretical aspects of the act of designing[33].

Research into the design process has produced results in describing the design process most proficiently in the 1980's under the name of design methodology. Many different researchers of the likes of Jones[34], Quarante[35] and Cross[36] proposed their interpretation of the process. In the end, three dimensions are present in all interpretations: Analysis, Synthesis, and Realisation.

General	***Cross, N.***	***Quarante, D.***	***Jones, J.C.***
Analysis	*Analysis*	*Identification Analysis*	*Divergence*
Synthesis	*Synthesis*	*Conception Synthesis*	*Transformation*
Realisation	*Implementation Evaluation*	*Realisation Evaluation*	*Convergence*

**Adapted from DeConnick 2004*

Table 1. Design Process as described by different design researchers.

In this research we chose to follow Jones' terminology of divergence in the problem space and convergence in the solution space. This choice of terminology when speaking of the design process is established because of its similarity to Findeli's description of complex design as an ongoing loop linking thinking and acting as well as inspiration and expiration[37]. This further promotes the idea that the design process is not a systematic step-by-step sequence of pre-determined activities. In contrast, creativity works best when moving within all aspects of the problem and solutions spaces. Any design method must permit both kinds of thought, both logical and creative to coexist within the progress of the project.

[33] Frayling, C. (1994). "Research into Art & Design"
[34] Jones, J.C. (1981). *Design Methods: Seeds of Human Future*
[35] Quarante, D. (1984). *Elements de Design Industriel.*
[36] Cross, N. (1984). Ed. *Developments in Design Methodology*
[37] Findeli, A. (2007) Conference «Penser et Agir dans un monde complexe».

Continuing on Jones proposal, we now focus on research for design which happens at the beginning of the design process. Also known as “design inquiry”[38], the research for design we will study is concerned with identifying the problem space. We choose not to continue using the term “inquiry” because of its mechanist and over-scientific connotation dating of the late 1970. We would argue that the term researching for design, once cleared of all confusion, is more evocative of the direction taken in this design and complexity masters.

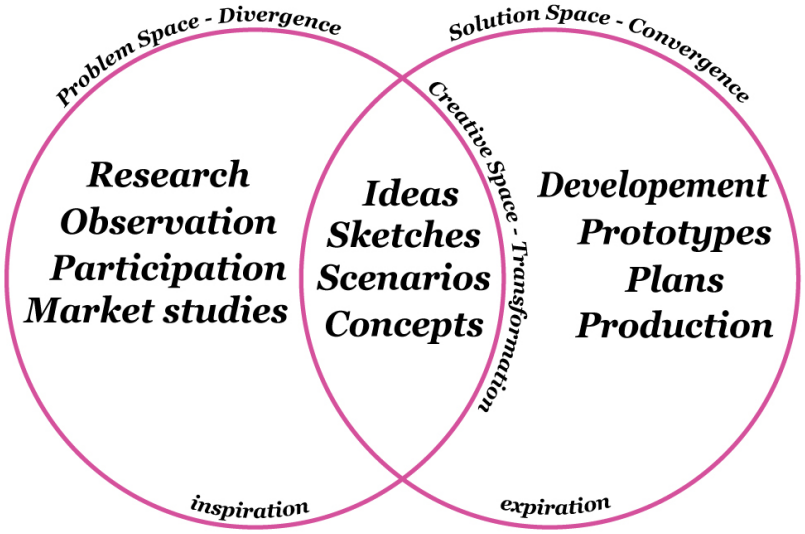

Figure 7. The Spaces in the design process, adapted from Jones 1980 and Findeli 2006

2.1.1 How can we determine the problem space?

Every problem-solving effort must begin with creating a representation for the problem; that is a problem space from which the search for the solution can take place[39]. Designers, with their global point of view, are called on to create new concepts and new situations that do not necessarily fit any existing problem spaces. Therefore the designer needs to find the right pieces before beginning to solve the puzzle.

Research can provide deeper insight into the problem space, as constraints are established and opportunities come to light. Research is more than searching haphazardly, and more

[38] Zeisel, J (1980) *Inquiry by Design.*
[39] Simon, H. (1963) *Sciences of the Artificial.*

than solving problems, pragmatically. The goal of research is to learn more about a situation in order to identify and help solve new problems[40].

When conducting research for design, we analyze the problem space by establishing the elements that characterize users, objects and contexts. Then, we can begin studying the relationships between these entities. The following section will identify the differences in these elements enabling us to apply them as filters when classifying the results of our field research.

In true hologrammatical form, we are diving deeper into the design research pole illustrated in the first chapter and yet we find ourselves studying the same relationships between subject, object and environment. In this case, we are using a more precise terminology for design with users, objects and contexts.

2.1.2 What the three founding dimensions in design research?

The construction of the problem space can be carried out by studying the three poles individually, each one within the realm of unique scientific fields. For example, studying users from a psychological point of view could reveal their primary needs in terms of security and comfort. Again, the users could be evaluated in sociological terms to determine the importance of social status or hierarchy within that user group. On the other hand, objects are often studied using tools of hard sciences like physics and chemistry. Lastly, cultural studies and history are just two examples of the many fields that can provide insights into the context of a problem space. Consequently, studying the three poles individually from the standpoint of individual sciences produces results that remain uni-dimensional and lack a comprehensive understanding of the problem space. This explains why complexity and research for design is much more interested in the relationships amongst the dimensions.

[40] Zeisel, J (1980) *Inquiry by Design.*

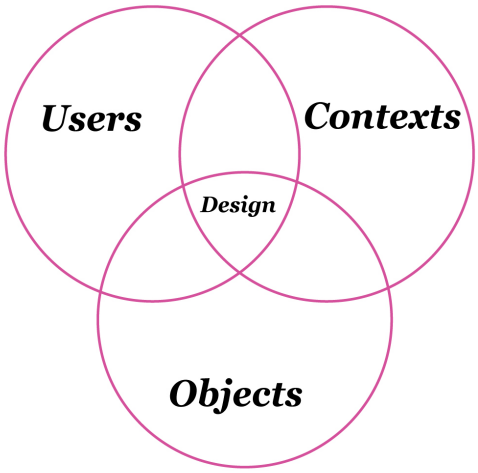

Figure 8. Researching for design elements present in the all design outputs.

2.1.3 What are the relationships amongst these founding dimensions?

If individually the three founding dimensions remain static and show little promise for generating new ideas, the interfaces between these dimensions are of higher relevance to design research because they can lead to defining needs. Also, these grey areas are more open to interpretation and can result in new understandings of the problem space.

To determine the elements to be studied in each interface space, we reviewed multiple writings on user needs analysis[41]. What follows are the most relevant elements. However, the message we wish to make clear is that although the following key words will direct our research focus, we are fully aware that many more elements could be put under the microscope. Thus, the following elements within the interfaces were deemed most relevant to investigating user generated creative content.

2.1.3.1 Users + Objects

When studying the user's relationship with products, behaviours and interactions are closely related to the design. These actions can be studied by looking at triggers, endpoints, standard steps, decision points, and exceptions. Triggers are the cause for an action to start. Triggers make the user want to begin a task. End points are the cause for an action to end on. Endpoints help the user acknowledge that the task is complete. Standard Steps refers to the process to accomplish the action. Decision points are the forks in the road. These are

[41] For user need analysis, the manuals which we referred to were: Contextual Design, Understanding Your Users, Design Inquiry, Developing Design Methods, Elements of Industrial Design, Designing design.

moment of hesitation which can reveal inadequate information or a lack of continuity in the process. Exceptions are the uncommon or original steps that the users take. They reveal marginal circumstances and usually require a higher degree of adaptation.

2.1.3.2 Users + Contexts

The relationship between users and the contexts can be compared to that of fish that are unaware of living in water. The context is so omnipresent that it can be overlooked. Nonetheless, by studying such elements as culture, we will expose the mindset in which people operate. Also, we will take into account values as they shed light on the reasoning behind certain attitudes, hierarchal power as it reveals the decisional autonomy of the users, emotions as they express user's reactions to the context and style as it divulges the identity that users wish to portray within the context.

2.1.3.3 Objects + Contexts

By taking the users out of the equation, we are left with the mostly technical and quantitative relationship between context and objects. This interface is concerned with the characteristics that are to be present in objects in order to perform under precise circumstances. The needs that will come from examining this relationship consist of criteria such as standards. Norms are an example of the constraints that need to be respected. Layouts demonstrate the place of objects within a space. The definition of space and movement is highly characterised by the underlying structures that support them. Because of the working outputs they provide, tools are to be considered as contextually relevant objects.

2.1.3.4 Users + Objects + Contexts

The combination of the relationships between users, object and context can be summed up in the concept of the experience. Merleau-Ponty[42] provides considerable insights into seeing the object[43] as experience. He compares the experience to an echo of consciousness or union between the body and the object. It can be perceived continuously within the context of space and time. He emphasizes the multi-dimensional aspects of the experience as well as the interaction between the dimensions. The experience touches the entirety of the being as

[42] Merleau-Ponty, M. (1945) *Phénoménologie de la perception. La chose : La chose intersensorielle.*
[43] In the French language, "la chose" refers to things however in its singular form. In such a case, we prefer to use the word "object" not to denominate it as a thing.

part of an absolute reality. Objects do not exist on their own. We perceive the experience of the object as a subjective essence that transpires from the use scenario. Some go even as far as saying the experience is the object[44].

Within the greater concept of experience, there are some elements that can implicate all three dimensions of the problem space. Movement is one part of the experience flow. It reveals how users manipulate objects within the context. Communication is the equivalent of movement and transactions in terms of information. Strategy is the contextual reasoning that manages the user's intent. Informal structures are the aspects that subconsciously work around the norms or even the strategies.

Merleau-Ponty states that knowledge comes from the experience of a phenomenon[45] and not an in depth empirical or intellectual study of the characteristics of each of its components. This point of view is at the core of the emergence of the field of phenomenology. But more importantly, this concept coincides with the way we accorded more significance to the relationships between the elements in the problem space rather than to the individual poles. This emphasis on the relationships that define a complex approach is actually a stepping stone towards entering the solution space.

2.1.4 How can the problem space lead to the solution space?

The research that goes into formulating the problem space leads to designing a preferred situation in the solution space. A good understanding of the problem space creates opportunities for generating new concepts.

In the chapter called "Starting from Scratch", treating the new in terms of the old, Schön tries to explain where novelty comes from. He tries to answer the question how can we deal with the new in terms of the old but without reducing it to the old. He starts by stating that when working towards the new, all we can use is the old. This could be seen as a form of unintelligence. Thus leading to dealing with novelty by ignoring the old.

[44] Merholtz, P. (2007) "The Experience is the Product".
[45] Merleau-Ponty, M. (1945) *Phénoménologie de la perception. La chose : La chose intersensorielle.*

Due to the figurative and approximate nature of humans, analogy is what separates us from the literal and exact. Schön therefore develops on three ways of treating the new in terms of the old: comparison, error and concept instances. All can lead to novelty but aren't necessarily generating new concepts.

Comparison is an evaluative method of distinguishing common characteristics among two or more things. This allows seeing two things together by juxtaposition. Error is treating two things as similar when they are in fact different. This is reducing the new to the old. Concept instance is a simple method of recognizing an element by it characteristics. It is a form of sifting out the new to recognize the old. So how are new concepts created from the old?

New concepts arrive as a result of this shift which happens after the process of displacement. Schön calls this a displacement of concept[46], describing it as a metaphor of the extension of the concept of old. In chapter 4, we will expand on this concept while exemplifying it with elements of the field research.

Tying into another of Schön's theories on idea generation in reflection-in-action, Coyne and Snodgrass demonstrate how the design process is similar to contextual and dialogical understandings of a conversation[47]. This concept will also be further discussed in chapter 5 when looking at the consequences of this research. For now, we wish to seed the idea of a conversation like activity is where both parties can expand from their initial understanding. We also wish to note that this to-and-fro movement from the first point of view and that of the third person point of view leads to the displacement of concepts.

In conclusion, the design research section is comprised of two parts. Firstly the design process moves back and forth from problem, creative and solution spaces. Secondly, research for design implies studying the relationships between users, objects and contexts in order to reveal the underlying needs of the design situation. By capturing the state of the design situation in these terms we are actually providing entry points into the solution space because ideas are generated by displacement of concepts. Now that we have described how design research can lead to generating ideas, we wish to explore what types of design outputs require these creative inputs.

[46] Schön, D.A. (1963) *Evolution of Ideas.*
[47] Coyne, A. & Snodgrass, R. (1997) "Is designing hermeneutical?"

2.2 Design Outputs

The following section of this chapter establishes the characteristics of three types of design outputs. Products, services, and product-service systems are in fact three possible outputs of the design process. Because the focus of this research is on the initial phase of research for design, we choose to approach each type of design outputs on three levels. In an effort to create a common understanding of the various design outputs, we turn to the processes that create these outputs. To do so, we begin by defining them. We then move on to the methods with which each type of design process formulates the problem and moves towards finding solutions that cater to the design situation. Finally, we look into how innovation applies to each output.

2.2.1 How do we go about designing products?

2.2.1.1 How can we define Product Design?

The design activity itself has been defined by Simon when he stated that "everyone designs who devises courses of action aimed at changing existing situations into preferred ones"[48]. Defining design has often been a difficult task because it is comprised of many intangible elements such as intuition, imagination and creativity. Moreover the process of design is a difficult undertaking because it deals with more elusive elements such as ambiguity and uncertainty. All these intangibles can be seen as barriers to scientifical epistemologies but including heuristics enables design to confront and ultimately shape the reality of everyday life.

Product Design is therefore the design activity that consists of creating material goods in order to answer the needs of users. The process begins by gathering information about the user's needs, object's requirements and the context's constraints of the design situation. By inventively remixing together ideas, drawings, and information, the product design process repeats cycles of problem solving efforts. This leads to a progression in transforming the input information into the output design. The design evolves in a process that is stepwise, iterative and recursive where each step achieves a measure of progress on a portion of the

[48] Simon, H.A. (1963) *Sciences of the Artificial.*

problem and its proposed solution. The process formally ends when the production of the solution is complete.

2.2.1.2 What are some Product Design Methods?

The early approach in the design process was object oriented. Technological and scientific knowledge necessary to manufacturing products was itself under development and objects were designed to accomplish a function. Now that we have attained certain mastery in the production and marketing of goods, the paradigm has shifted its focus towards user-centered design, a term first proposed by Norman when he argued for redefining the goal of product design to first and foremost cater to the needs of the users[49].

Turning user-centered design ideals into physical products that can be engineered and produced is not an easy task. Again, we choose to narrow the scope on how users' needs can become ideas for the design. In-depth understanding of everyday user practices leads to an overwhelming amount of immensely detailed information. This is why we established a few key elements to further focus our efforts in defining the problem space.

Because Zeisel focused on the same initial aspect of the design process, we choose to restate the 5 characteristics of the design method as he put them forth[50].

1. Three elementary activities

The complex activity called "designing" interconnects three constituent activities: imaging, presenting, and testing.

2. Two types of information

Information used in designing tends to be useful in two ways: as a heuristic catalyst for imaging and as a body of knowledge for testing.

3. Shifting visions of a final product

Designers continually modify predictions about their final result in response to new information and insight. The design process is thus a series of conceptual shifts or creative leaps.

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[49] Norman, D.A. (2002) *The Design of Everyday Things.*
[50] Zeisel, J (1980) *Inquiry by Design.*

4. Toward a domain of acceptable responses

Designers aim to reach one acceptable response within a range of possible solutions. This domain of acceptance is measured largely by how well a product is adapted to its environment and how constituent parts of the products interact with one another.

5. Development through linked cycles: a spiral metaphor

Conceptual shifts and product development and design occur as the result of repeated, iterative movement through the three elementary design activities.

The methods developed to design products are closely linked to the design process described previously in the analysis-synthesis-realisation models. However, the particular case of product design is concerned with solving problems that are related to the production of better physical goods to respond to the needs of its users.

2.2.1.3 What is innovation when designing products?

Innovation is often thought as an epiphany[51], when in fact that "eureka" like moment is more akin to placing the last piece of the puzzle and finally getting the total picture for the first time[52]. Closer to reality is that innovation requires a lot of research upstream in the project by collecting information, understanding its consequences and creating meaning from it. Once more, this resembles the process we have described in going from the problem to the solution space. The gap between the two spaces is where innovation begins with creativity.

It is by framing the problem differently that creative ideas come about. Take Edison for example. He wasn't alone to search for lighting solutions, but he was the first to think in terms of a system that could get electricity to homes which would then be used for lighting. Innovation is therefore a combination of seeing the problem clearly and having the talent to solve it[53]. In the end, innovation is most clearly recognized when the idea becomes accepted, not only by those proposing it, but by the population of users in general. To get an idea accepted is what constitutes the main barrier to innovation[54].

[51] Berkun, S (2007) *The Myths of Innovation.*
[52] Idem
[53] Drucker, P (2003) *Innovation and Entrepreneurship.*
[54] Berkun, S (2007) *The Myths of Innovation.*

Product design has been part of the industrial revolution at the heart of the material economy of the 20th century[55]. The core of any goods manufacturer has always been the introduction of new products or product improvements. Without innovation, the manufacturer will ultimately go out of business. The innovative products must satisfy potential customer's needs while responding to the pressures of competition whether local or foreign. This has been a tiresome pursuit that very few manufacturers have been able to maintain over long periods of time. As we witness the delocalisation of the production phase to rapidly developing countries in emerging economies, our reflex has been to increase the specialisation of the other steps within the industrial process to insure the survival of our own economy. A tentative solution taking root in our society has been to turn our attention to providing services.

2.2.2 Designing Services

As developing countries are responding to the world's agrarian and manufacturing needs, the developed countries are moving towards an information-based economy. Services have come to represent more than 75% of the U.S.[56] and U.K. [57] economies a growing 69% of the Indian economy[58], and the interest for the field is increasing. But what exactly is a service?

2.2.2.1 How can we define Services Design?

From a marketing perspective, Kotler defines a service as "any activity or benefit that one party can give to another that is essentially intangible and does not result in the ownership of anything."[59] This definition is somewhat acceptable, but remains a bit ambiguous because of the result which is characterized as "essentially intangible". Hollins describes service design as both tangible and intangible. "It can involve artefacts and other things including communication, environment and behaviours. Whichever form it takes it must be consistent, easy to use and be strategically applied."[60] This leads us to thinking of services in holistic terms. It is by thinking in terms of systems, infrastructures, relationships or interactions that

[55] Pink, D.H. (2005) *A Whole New Mind.*
[56] Horn, P (2005) "The New Discipline of Service Science".
[57] Hollins, B (2006) "Service design".
[58] Nussbaum, B (2007) "Innovation in India".
[59] Kotler, P. & Armstrong, G. (2005). *The Principles of Marketing.*
[60] Hollins, G., Hollins, B. (1991). *Total Design: Managing the Design Process in the Service Sector.*

the customer's experience is designed holistically. This can be seen as a cornerstone of service design.

This holistic approach to designing services is a natural evolution following the change in the design problem solving paradigm that emphasizes user-centered design. By looking at needs of the users and opportunities of the market, service providers strive to achieve a fixed end result. Because of this focused objective that services cater to, the design of products within the service differs. For example, a service relieves the user from the responsibility of the end of life of the product. Therefore the user's relationship to the product is less about owning and more about usage. Inversely, the user's relationship with the company is greatly impacted by the overall experience in achieving the provided benefit.

2.2.2.2 What are some Services Design methods?

When creating a new service, determining the problem space largely concentrates on understanding the user's needs. Answering this need is at the core of the service, without which the service has no meaning. Papanek was an early figure in thinking how designing services can cater to the user's needs. In fact, he believes that underlying needs have often been over-staged by the satisfaction of ephemeral wants and desires. Moreover, Papanek describes an extensive difference between designing for needs and for wants. "The economic, psychological, spiritual, social, technological, and intellectual needs of a human being are usually more difficult and less profitable to satisfy than carefully engineered and manipulated wants inculcated by fad and fashion."[61] On the other hand, Hollins relates that some marketers quantify the importance of wants and needs when designing a service. They establish needs as four times more important than a want. But Hollins isn't endorsing this quantification because it can lead to specifying false requirements. In his view, answering a need is essential to the adoption of the service whereas if a want is not part of the service, the user can still achieve the expected outcome.

Having a service or a product respond to its user's needs is not an easy task. The overwhelming cause of failure in products and services launches is due to companies not understanding the customer's requirements[62]. Lack of market research is also part of the

[61] Papanek, V. (1981). *Design for the Real World.*
[62] Cooper, R.G. (1998) "The New Product Process: A Decision Guide for Management".

problem. The fact that 2 out of 3 products and services put on the market are failures shows that designers aren't answering people's needs.

This hides a larger problem in design management where too little emphasis is put on the initial research phase[63]. In addition, the market research and problem setting phase of the design process make for only 12% of the expenses in developing a new product or service[64]. Injecting a little more time and money in these phases could result in identifying potential failures by better discerning needs and therefore increasing the potential for success of the design.

Moving more resources to design specification phases seems to be a simple solution, but there are two reasons for which this hasn't taken place so far. Firstly, most companies haven't taken the time to analyze the cost of each phase of development. This is partly due to the fact that the separation of various departments hides the true global picture. Secondly and more importantly, assumptions made by administrators are too often at the base of the concept stage, yet they are not reliable research findings. Furthermore, design firms are rarely allowed to question the brief that is provided. This limits the designer into a solution finding process which reduces the overall opportunity for creative innovation in generating value for the client and the user.

In summary, services are focused on answering the user's needs and this is fittingly reflected in the service design process. It emphasizes researching the user's needs in identifying the problem setting more than simply developing a solution to a predetermined problem.

2.2.2.3 What is innovation when designing services?

Hollins continues to discuss how innovation is integrating the services sector.

> *"Innovation, being an important subset of the design process, is poorly applied in the service sector. Innovation can occur in all stages of the whole life of a product, especially (and increasingly) at the service end when*

[63] Rea, J.(2007) "Service Prototypes".
[64] Hollins, B & Hollins, G (2006) *Total design*. p. 29

customers are more likely to be directly involved with the delivery of the service."[65]

The idea of having customers more involved in the services they require is increasing in strength. This has led to participatory design methods being applied to better focus on the customer's point of view. Therefore, service designers will need a shift of attitude; they will have to design *with* rather than *for* people. This idea was put forward by Papanek who, again, was early to acknowledge that designers have not to design for money but to design for many[66].

Innovation is generally easier to achieve with services as there is less of an existing infrastructure to be replaced than with manufacturing. Customers more readily accept changes brought about through innovation[67]. When designing innovative services, there are a few strategies that can be adopted. For example, by measuring performances, the service provider can better answer the customer's expectations. Also, using mystery shoppers can ensure that service standards are maintained and continually improved. Designing a service where customers can see a clear benefit in using it also has measurable benefits for the organization. Maximizing all types of resources enables the organization to do more with less. Although the customer isn't always aware of this practice, it can be a part of the strategy to inform the customer of the lower impacts on the environment. This leads to educating customers which might be time consuming, but is often a fundamental part of the service design process.

2.2.2.4 How do we differentiate Services from Products

Before moving to the space between services and products, we choose to establish the differences between the two. The IHIP framework, standing for inseparability, heterogeneity, intangibility, and perishability, dates back to 1978 and is the classic articulation of what differentiates services from goods. This was the basis for the later differentiation proposed by Hollins to understand the distinctions between service design and product design. He presents five ways in which most services differ from manufactured products[68]:

[65] Hollins, B (2006) "Service design".
[66] Papanek, V. (1981) *Design for the Real World.*
[67] Idem.
[68] Hollins, B (2006) "Service design".

Customer contact

Generally, the customer is probably unaware of how a product was manufactured. In the case of services, production and consumption tend to occur at the same time. Also, some services cater directly to their customers (B2C) while others respond to other businesses' needs (B2B). Although each product produced can be identical, the experience of interacting with a service is always going to be different from customer to customer.

Quality

Some aspects of manufactured products can be measured objectively. In contrast, the overall quality of a service is much more subjective. In a service, there are few quantitative measures as the evaluations tend to be mostly qualitative. As a result, there is a wider variability in services and it is more difficult to control the quality of a service.

Storability

Because services tend to be intangible, it is usually impossible to store them. For example, a car in a showroom if not sold today can be sold tomorrow but an empty seat on an airplane loses its value once the plane has left. One can count how many products are present on hand; yet one can't take inventory of a service.

Tangibility

One can physically touch a manufactured product but most services are intangible. One cannot touch legal advice or a journey though one can often see the results. One can see and touch a product before one buys it; one can't have a feel for a service until one experiences it.

Transportability

Most services cannot be transported and therefore, exported (though the means of producing these services often can). It is estimated that only 11% of services are exportable although this is fast changing. Unlike a product which can be taken home after purchase and used later, services are consumed in the same time and place where they are purchased.

To summarize, as the economy relies on the services sector to support itself, the design of innovative services is growing in importance. Now we are seeing the rise of some new

approaches like Product-Service Systems that adapts existing design methodologies to joining both types of design outputs in a sense of a middle ground.

2.2.3 Designing Product-Services Systems

2.2.3.1 Defining Product-Service Systems

In a 2007 paper retracing the evolution and the present understanding of product-services systems, Baines et al have reviewed the past decade of literature on the subject of PSS design, and established the state-of-the-art in this growing field[69].

The authors proceed to examining many definitions of all the nomenclature that relates to the field. In some cases they show the variability in the definitions thereby demonstrating the evolution of the concept over time. For example the initial author treating directly PSS and naming it so was Mark Goedkoop who defined PSS as:

> *"A product service-system is a system of products, services, networks of players and supporting infrastructure that continuously strives to be competitive, satisfy customer needs and have a lower environmental impact than traditional business model."* [70]

This differs slightly from the definition of Ezio Manzini who picked up on the trail and popularized the notion of PSS in 2003:

> *"An innovation strategy, shifting the business focus from designing (and selling) physical products only, to designing (and selling) a system of products and services which are jointly capable of fulfilling specific client demands."* [71]

Manzini is the author that speaks most of the possibilities for sustainability emerging from such process. Ironically the mention of environmental impacts is not mentioned the way it is in Goedkoop's initial definition. It is by studying other definitions of the sort, Baines et al.

[69] Baines et Al. (2007) "State of the Art in Product-Service Systems".
[70] Goedkoop,et al. (1999) "Product Service-Systems, Ecological and Economic Basics".
[71] Manzini, E. and Vezolli, C. and CLARK, G. (2001) "Product service-systems: using an existing concept as a new approach to sustainability."

have noticed the adoption of Goedkoop's definition throughout the literature. Nonetheless, Baines et al. do dare to propose this simplified definition:

> *"A PSS is an integrated product and service offering that delivers value in use."*[72]

In this paper we choose to follow the general consensus and continue with the definition that Goedkoop established. It is noteworthy to determine at this time the meaning that he attributed to the words Product-Service System in his definition. Hence, a product is a tangible commodity manufactured to be sold and to fulfill a user's needs whereas a service is an activity done for others with an economic value and lastly, a system is a collection of elements including their relations.

Some PSS projects are creating new business markets because of their emphasis on selling the use rather than selling the product. There has been mention of companies adopting one of the three types of PSS. The product-oriented PSS promotes and sells a product in a traditional manner. This includes the original act of sale and additional services such as after-sales service guaranteeing functionality and durability of the product owned by the customer (e.g. a computer with extended servicing). The use-oriented PSS: selling the use or availability of a product that is not owned by the customer (e.g. a car-sharing service). Result-oriented PSS: selling a result or capability instead of a product (e.g. a laundry service).

The results-orientated model is more complex yet nonetheless represents the most popular and innovative interpretation of the features of a PSS. Also, a result-oriented model better suits customer needs by allowing the provider to customize their response consequently increasing the quality of their service and creating a differentiation with competing companies. In looking to create a total value for the customer, the experience is designed and tailored to his needs. It also must take into account the culture in which the PSS will operate. All this leads to a PSS development process that is subject to a case-by-case basis and viewed from the client's perspective.

[72] Baines et Al. (2007) "State of the Art in Product-Service Systems".

The creation of product-service systems has influenced industrial designers to start thinking in terms of services more than in terms of products. In a small editorial piece, Lifset takes on this new mindset as a sustainable practice and warns of 4 possible downfalls. [73]

Firstly, confusion between matters of ownership and actual physical use can arise. The characteristics of the object do not necessarily change because of its new use strategy. Cars in a community leasing program remain the same carbon dioxide gas emitters.

This new use oriented strategy also leads to a second possible result. It has been acknowledged by life cycle analysis researchers that most of the impacts of an object are created during its use. In this case, multiple users share an object and therefore increase its use percentage drastically.

The quick answer to these two drawbacks can come from the simple decrease in the amounts of produced objects. Increasing the number of users for one single product can reduce the demand for large scale production. Secondly in cases where the user is not the owner of the object, the company that manages the service is in charge of taking care and taking back the product. It is to their advantage to create longer lasting products that can be easily disassembled for recycling or reusing within the next generation of products.

The third downside is that marketers have been selling products with multiple functions, in what has been called “bundles”. Marketers have been targeting the customer’s wants and responding with tailored features on products. Whereas an ecological design of the product might go against part of these customer demands.

Finally, products are more than physical service providers; they can have social functions too. A car is as much a status symbol as it is a way to get from A to B. This is a negative aspect that needs to be addressed in the social collective.

If the design team behind the PSS has done its job right, these two previous arguments could be a thing of the past as users begin following the spirit of “you are what you do and not what you own”. The bundle aspect of a product can still be present in the family of services offered by the company. The social symbols can definitely be a part of the service

[73] Lifset, R (2006) “Moving from products to services”.

as well. In stride with this kind of thinking, Bousbaci and Findeli go one step further by proposing that design should think in terms of actors and their lifestyles by eclipsing functions of objects[74].

2.2.3.2 What are some PSS Design Methods?

Generally speaking, Morelli's article presents the theoretical foundation for the present methodologies to design Product Service Systems[75]. Morelli decided to explore and argument for these three aspects of the process: analysis of the system phases, and technical representation of PSS in the design process. However, we choose to revisit these three subjects with simplified titles.

The Social Aspect of Systems

In focussing on Morelli's first point, an analysis of the system as a social construction needs to be undertaken to assure a better link between the culture of the users and the implementation of the network technology. He proposes a method developed by Bijker to evaluate the social setting with a certain set of predetermined criteria. Depending on the general profile that arises, this analysis would help to better enhance or limit the implantation of the service. Even though some services might entail a substantial learning curve for a certain part of the population profile, if the design is well thought out and the advantages are clearly stated, people can embrace change.

Scenario Building

A scenario, the imagined story of an event, is a design in itself[76]. A story illustrates an event that can be understood by most people. Because of their narrative aspect, stories are an effective means of communicating experience and activities to people with different backgrounds. Scenarios have been used for various purposes in the design process[77] such as problem description, future prediction, concept generation, requirements analysis, and detailed system design.

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[74] Bousbaci, R. & Findeli, A. (2006) "The eclipse of the object in design project theories".
[75] Morelli, N (2003) "Product-service systems, a perspective shift for designers: A case study: the design of a telecentre".
[76] Jonas, W. (2001) "A Scenario for design".
[77] Idem

Scenario building illustrates and identifies requirements for generating solutions that address needs discovered in a certain context. To address these needs, the scenario method generates a holistic representation to identify problems and requirements from multiple points of view, and incorporates them into a description of a solution. In the end, scenarios are images of possible, probable, or preferable futures or futures to be avoided, and sometimes comprise the steps to achieve them[78].

Generally, scenarios are be developed and used in a normative or exploratory manner. Normative scenarios greatly resemble the creation of visions for the future. Often only a few normative scenarios are developed, and the main purpose is to identify the 'perfect future' of a given subject. The scenarios may then be used as a tool to identify actions that must be taken by different users if the visions for the future are to be realised. This method is most often used by organisations that have a very clear agenda and set of goals they wish to pursue without too much debate on the uncertainties of the future. In this sense the "normative scenario" becomes an established process description. In the following chapter, we will therefore focus on the creation of exploratory scenarios, which are concerned with the presenting the uncertainties of the future. They are created in order to understand just how different the future service may be and what may spark these changes.

Still today, scenario building approaches do not use consistent methods for accommodating and manipulating multiple aspects of a use situation.

Blueprinting

A service blueprint is an operational tool that describes a service in enough detail to implement and maintain it. The blueprinting method is used by designers, business managers, and software engineers during development. It represents a potential process, and then works as a guide for managers who operate the service on a day-to-day basis. Designers use blueprinting to ensure that the service is centered on the customer's experience. All tangible manifestations and hidden processes defined in the blueprint are thought out in terms of user experience. Therefore, blueprints build on use cases or customer journeys throughout the service design process.

[78] Jonas, W. (2001) "A Scenario for design".

Lyn Shostack was the first to write about visually describing a service. She revealed that unsystematic design and control methods lie at the root of service failures. As a result, service development is usually characterised by trial and error rather than by deliberate methods like service blueprinting[79].

The basic need for service blueprinting is threefold. Firstly, because processes take place in time, the blueprint must, like PERT charting, show time dimensions in a diagrammatic form. Secondly and most commonly, similar to engineering processes, a blueprint must identify all main functions and sub-functions of the service. Where these are performed by people, a work chart should be constructed. All input and output of functions must be shown. Akin to systems design, the blueprint must identify and handle errors, bottlenecks, and cycles. Finally, the blueprint must precisely define tolerance of the model. For example, the degree of variation from the blueprint's standards can be allowed in execution without affecting the overall quality.

The graphical representation of PSS is the topic of an ongoing debate, with several interesting contributions, but as with scenario building, no final definition of a standard for blueprinting PSS exists[80].

More on these relationships could be known if the literature presented more critical and in-depth evaluation of their performance in practice. Baines et al. have determined that the range of tools and methodologies that are present in developing PSS are often subtle modifications of more conventional design processes and lack the tools proposed lack completeness. They wish to pursue their understanding of PSS by developing more tools to create PSS strategies that study further what is called management of transition, and thus use more quantitative methods. However, the challenge to integrate the relevant stakeholders in a participatory process remains. In contrast, our goal is to show that users are already participating, and figure out how designers can translate that into more effective PSS.

[79] Shostack, L. (1984) "Designing services that deliver".
[80] Morelli, N. (2002) "Designing Product/Service Systems: A Methodological Exploration".

2.2.3.3 How can PSS bring innovation?

A Product-Service System is also a new strategy for businesses to change the role of the manufacturing operations in developed countries of the western world. From their point of view, the solution to a reduced amount of objects produced lies in augmenting the intensity of the knowledge required to produce such products. When a manufacturer becomes more responsible for its products and services through take-back, recycling (or even upcycling), then refurbishment, the integration of a PSS strategy reduces waste throughout the product's life. That is the argument upon which authors base themselves to describe PSS as a sustainable strategy.

In fact, the sustainability of the PSS becomes possible thanks to a systems view in the development and maintenance processes. Because of this world-view on the situation, designers are empowered to better manage the waste and quality of the output that the PSS produces. This same perspective not only allows for better environmental impact management but also reduces the economical costs of rendering the service. Interestingly, the majority of authors that expose the results of designing a PSS prefer emphasizing the benefits on an environmental and social scale over demonstrating the economical successes[81].

The designers' tendency towards leaving aside the economical cost variation of running a PSS might be due to the cultural barrier required to embrace such a shift in operating methods. This shift and new understanding has to take place not only in the minds of the company executives but also in the minds and hearts of the customers. So far, an initial resistance to ownerless consumption has been manifested by users. Furthermore, if users have to relinquish their ownership of an object, companies have to become responsible for structuring their organization to receive the used products. Companies also take on the risk of product malfunction. This is not to mention the difficulty of pricing the single use of a product. For example, what should be the cost of printing one sheet of paper? To surmount the barriers that stand in the way of adopting a PSS as a business strategy, a company must learn to work with a complex point of view and therefore develop a systemic approach to designing their services.

[81] Baines, T. S., et al. (2007) "State-of-the-art in product-service systems".

This complex point of view also suggests including all players into the equation as mentioned in Goedkoop's original definition. Therefore the users have a pivotal role to play in participating in the early development stages to create a system that is conscious of the user's perspective of the service offered. Some researchers go one step further by stating that in an effective PSS, users should be thought of as innovators. They emphasize a shift towards co-creation, whereby end-users play an organized role in the design process[82]. Therefore this change from product thinking to systems thinking modifies all the relationships between businesses, users and designers.

2.3 A Conclusion for Researching for Design and Design Outputs?

This part of our research has led to a better understanding of the design process, particularly the initial phase of research for design. We have seen that the problem space is constituted of users, objects and contexts. In addition, the relationships amongst these three dimensions reveal needs and opportunities to be taken into account. By formulating the problem space in this way, we are also simultaneously moving within the solution space by generating ideas in concept shifting.

Researching for design							
Design Outputs	***Design Spaces***			***Design Relationships***			
	Problem Space	***Solution Space***	***Creative Space***	***User-Objects***	***Objects-Contexts***	***Users-Contexts***	***Users-Objects Contexts***
Products							
Services							
PSS							

Table 2. Design Matrix where design outputs meet design spaces and research interfaces.

Furthermore, the importance of understanding users' needs and their point of view are recurring themes in theory and in practice. The design activity is centered upon the user's global experience. Therefore, this research will look to see how the founding theories in moving in the three design spaces can be applied in terms of our three design outputs: product design, services design and PSS design.

[82] Luitten, H., Knot, M., and Van Der Horst, T. (2001) "Sustainable product service-systems: the Kathalys method".

3. Methodology

Participatory design methods are a starting point to address complex design problems because they convey that there is no single truth to be told, but multiple truths to be confronted. In fact, we began our methodological research by studying how participatory design integrated the design process. This historical evolution has been extensively documented in appendix 1. The second element that deepened our understanding of participatory methodology was by examining how projects undertaken in three other fields of knowledge also strive for democratic ideals by engaging their users in the design process.

In reviewing these three cases, we noticed that many difficulties with the participatory design process are reoccurring. Firstly, the researchers expressed that the users do not understand the goal and the process itself. Secondly, users aren't completely free, neither in their choice of participating, nor in the activities they undertake, nor in taking decisions. Consequently, the last reoccurring difficulty is that participatory processes work best when the users are held accountable and responsible for the outcome of the project. In the following section we will see how theses three problems will be overcome by our method.

At this point, we wish to make an important note on the methodology of this research with respect to our practical and theoretical progression. We began this research with the idea of initiating the participation of online users. We found a tool that gave us that possibility and published an article about the subject entitled: "Creative Crowdsourcing: Participatory design over the Internet."[83] From a practical point of view, the tangible results that were collected from the users weren't as exhaustive, creative nor provocative as content presently online. We found more content in the videos, images and blog posts readily available. This led us to shift our theoretical framework from participatory design methods to observation methods. Nonetheless, participatory design has provided the general approach and the structure with which we will conduct our own methodology and therefore we present our research on participatory design in the appendices.

Even though we have learned much from participatory design and the benefits of including the point of view of the user into the design process, we will now distinguish our research

[83] Joyce, A (2007) "Creative Crowdsourcing: Participatory design over the Internet".

from this practice. Although initially we hoped to use the Internet to reach out to users and allow them to take part into an active participatory design process, we have chosen to take advantage of the existing methods of communication without directed and structured participation. A case could be made that when users submit the ideas they have come up with to improve their objects online, they are participating actively in the design process. It is because the users are unconscious of their said participation and because they aren't directly included in the design process, that the methodology we will propose in the subsequent section can't be considered as participatory design nor even professional participatory design. The users we will study have no decisional power, no deliberation possibilities, and most of all no accountability. Nonetheless, our findings and our conclusions from reviewing participatory design practices greatly influence the broader approach with which we will conduct our study.

This third chapter concerning the methodology of our research will draw on the previous research to create a methodology for the purposes of answering the two founding questions behind this research. Again, they are: What type of information does user-generated content provide for design research? And, is this information more pertinent in designing products, services or products-service systems?

3.1. What methodology are we proposing for this research?

When establishing our own research protocol, we noted that our methodology was on the margins of participatory practices. For that reason, we now turn to the practices of user observation to influence our methodology in this research.

3.1.1 What are the sources of information when researching for design?

When describing the design process earlier in chapter 2, Jones described it as a back-and-forth motion between the problem space and the solution space through the creative space. He also lists the four sources of information that inspire the design process[84]. **Literature** provides nearly all that is known about how we have been solving existing problems. The main difficulty with literature is to find the right information within the vast quantity of

[84] Jones, J.C. (1984) "A method of systemic design".

knowledge that has been produced over the last centuries. **Experienced people** are another source of information and can guide the designer towards the heart of the problem. **Experimentation** can help resolve doubts with direct experience but requires a great amount of initial information as well as time and effort. And finally, Jones speaks of **observation** and the vast amounts of information that needs to be contextualized in order to become requirements. In this study, we will put forward a hybrid approach to gathering these sources of information.

By researching the relevance to the design process of user generated content submitted online, we will in fact be taking advantage of people's experience. When a user writes a blog, keeps an online photo album or showcases a video, we have a first-person point of view related to their experience. In some cases we will learn from the experimentations that users make available via these same three media. To benefit from theses sources of information, our methodology will be largely based on observation. That's why the following section will delve deeper into the techniques of user observation as a source of knowledge in researching for design.

3.1.2 How can we observe user behaviours?

Observing phenomenon is an activity with ever changing variables. Merleau-Ponty pointed out that observation is not bound by characteristic elements or stable properties because it is reduced to the perceptual constants that we can gather in physical or symbolic terms of representation[85]. This also refers to age old concepts described by Plato[86] as the world of reality versus the world of reason. To which Kant responded by suggesting that reality is unattainable and is the product of perceived reality[87]. Consequently, we became aware of our prejudices as an observer. A paradox lives in the scientific epistemology of observation, because science wants to closely study the world of reality but to understand it, the Cartesian method requires subjectivity that distances the observer from the object of study. The theories of complexity attempt to solve this difficulty with an epistemological approach which includes the observer in the methodological discussion.

[85] Merleau-Ponty, M (1945) *Phenomenology of Perception.*
[86] Plato (360BC) "Allegory of the cave" in The Republic
[87] Kant, I (1781) *The Critique of Pure Reason.*

In our field of research for design, Zeisel is a pioneer in describing methods of observing physical traces of human activity. Some of these means of adaptation might be conscious such as tying a red rope around a tree branch to indicate the way or they can be unconscious like the path of footsteps left on the trail. Nevertheless, both types of information present in user generated content provide insight to nourish the research phase of the design process.

As a research method, observation offers many advantages. It concerns the visual, the imaginable. Observing physical traces creates vivid impressions and is greatly illustrative of the experience of the user. Observation is durable in the sense that the traces of use can be recorded. They do not disappear the way thoughts or emotions do. In a case where the observation doesn't affect the user's activity[88], observation is then characterised as unobtrusive. Lastly, to observe requires very little effort, time and money. All of these elements will be favourable to the observation practices of this study. But how are we going to observe users?

Courage & Baxter describe three categories of techniques for observation of users. Observation only, interacting with the user, and method supplements all require relatively similar amounts of time and resources yet they differ greatly in the way they gather data. The following table shows the different techniques included in these three categories of observation. We have added a column to this table in order to show the type of data that could be collected[89].

[88] The case where the user is affected by the researcher's presence is called the Hawthorne effect and it will be discussed in the following section.

[89] Courage, C. & Baxter, K. (2005) Understanding Your Users, Elsevier, page 570

Method	Synopsis	Advantages	Level of effort	Type of data
Pure observation	When you're unable to don't wish to interact with the user, you simply observe from a distance	- flexible -low resources	Minimal	- Observers notes - Images & Video
Deep hanging out	This method is similar to pure observation but provides more structure by suggesting focus areas and things to observe	Higher detail level of data analysis and possibility to compare data collected across multiple sites.	More structure means more effort than pure observation. Includes the possibility of becoming a user.	- Observers notes - Images & Video -live the actual experience
Contextual inquiry	Interview, apprentice and interpret the resulting data with users	Focused on context.	Even more structure and relationship development	- Observers notes - Images & Video -live the actual experience -discussions with user
Process analysis	Capture the task sequence for a process that may span over a long period	Faster than contextual inquiry because focused on one task	Lower than contextual inquiry because of task focus	- Observers notes - Images & Video -discussions with user
Condensed ethnographic interview	Use the results of semi-structured interviews to guide observations	The interviews scope what you observe	Effort on two levels: interviews and observation	- Observers notes - Images & Video -discussions with user
Discount user observation	One researcher interviews the user while another takes pictures of everything	Reconstruct the session through timestamped notes and images	Requires two researchers and additional effort to combine findings	- Observers notes - Images & Video -discussions with user
Artifact walk-throughs	Collect all the artifacts used by participants and determine what triggers their use, when they are used and for what.	Quick and easy to conduct	Low-level of effort to review artifacts with participants and make copies of them	- Observers notes - Images & Video -discussions with user
Incident diaries	Worksheets the user takes home to collect ongoing data rather than one time opinions	No observation required, as additional issues surface after study	Dependent on participants' follow-through	- Users' written content
Observing while you are not present	Reporting users in action when space, time, or restriction prevent you from being there in person	Physical presence not required	Setting up the camera	Video

Table 3. User observation methods adapted from Courage, C. & Baxter, K. (2005) *Understanding Your Users*, Elsevier, page 570.

Our initial experimentations lead us to believe that by studying the content that users are submitting online, we will be able to gather types of data that go beyond simple observation. In fact, because the user is completely in control of the content and the information he provides, we can't choose in advance a distinct method of observation. Although we will not be able to interact with the users, the abundance of content provided by the users answers questions we would like to ask. In addition, some users are being creative and actively taking part in designing their own solutions. This is what makes this process *feel* like it was participatory design. In the end, we hope to gather similar types of information as if we were following the methods described in the previous table. The objective of this research is to begin mapping out what kind of information users are actually contributing.

3.1.3 What are the limits of user observation?

When studying user behaviour, a gap exists similar to that described by Kant [90]between what users *say* they do versus what they *actually* do. Two solutions have been proposed for this problem by Courage & Baxter[91]. Firstly, researchers must manifest their interest in these mechanisms of adaptation concocted by the users. The emphasis on reality, with the intention of simplifying situations, helps to reduce the gap. Secondly, because some users aren't doing what they are "supposed to do", a guarantee of confidentiality ensures that no disciplinary measures will be taken for not abiding by the rules.

The **Hawthorne effect**[92] takes place when participants' behaviour and performance change following any new or increased attention. In the presence of observers, the participants are then on their best behaviour, trying to follow rules and to demonstrate that they follow protocol. Quite the contrary, observers are actually interested in their methods of coping, and the shortcuts that they employ. Countering the Hawthorne effect can be done by developing a relationship of trust with the users and informing them of the nature of the research. It is up to the observers to help the users feel comfortable and eliminate the barriers to true behaviour observation.

[90] Kant, I. (1781) *The Critique of Pure Reason.*
[91] Courage, C. & Baxter, K. (2005) Understanding Your Users, Elsevier.
[92] Dickson, W. J. & Roethlisberger, F.J. (1966) *Counseling in an Organization. A Sequel to the Hawthorne Researches.* School of Business Administration, Boston, 480 p.

In Chapter 2, we described the relationships between users-objects-contexts present in a design situation. Probing into theses relationships can be seen as the ends of research for design. To describe our methodology is to reveal the means with which we will obtain this information. Even though the initial reflex is to label the interfaces of the users-objects-contexts, for example by simply naming the users-objects space “actions”, it would restrain the possibilities for other types of relationships like that of emotional attachment and intellectual stimulation. Unlike a recipe where the mix of the same ingredients always gives the same results, the constructed interfaces vary greatly because of the point of view of the observer.

3.1.4 What is our study’s protocol?

This research’s protocol is constructed to study user generated content and identify the elements pertinent to researching for design in the early stages of the design process. More precisely, we will search three types of media: videos, images and text. For each of these media, we will search for the three types of design outputs: products, systems and services. We have chosen to work with the theme of mobility because of its importance to our ever growing society. To be able to qualify how user generated content affects each type of design output, we will study a single product, the car, distinguished only in its manner of offering the benefit of mobility to the user. Accordingly, mobility rendered in terms of a product would be the private automobile, in terms of a product-service system would be the car sharing program and in terms of a service would be the taxi.

When we found content pertaining to one of these outputs, we identified two types of information relevant to researching for design: the design space and the design relationships. We collected 50 samples[93] of content pertaining to each possible cross-referencing of the three variables in this study. This method will channel the information from the users into distinct categories within a matrix, thus providing quantitative measures when analysing the variety and similarities of the content. These categories proved use to be useful when drawing conclusions in the following chapters.

[93] The amount of 50 samples (n =50) per category was determined with the intention of largely surpassing the minimal amount of 30 samples ($n \geq 30$) to draw correlations as proscribed by Robert in *Méthodes Quantitatives*.

The first element that needs to be discussed is the presence of many variables in this study. The question raised in this research asks what kind of information pertinent to researching for design users are submitting online. The answer will come from categorizing each piece of information accordingly in a table depending on the definition of theses variables which have been presented in chapter 2.

The first variable coming from the data collected will be the area of **researching for design** that is concerned. Within this first variable of the area of researching for design, there are three levels of information. Firstly, are users presenting information pertaining to the problem space, the solution space or the creative space? Diving deeper, we also ask if users are offering information specifically concerning the user-context, the user-object, the context-object or the user-object-context relationship. The relationships at stake in the design represent the second level of information. Thirdly, the actual piece of information is the deepest element of this first variable.

The second variable that we are dealing with in this study has also been extensively presented in the second half of chapter 2. The three different outcomes of the design process we are studying are products, services and product-service systems. In the end, we have chosen three examples of mobility in a car to provide better means of comparison between the three **outputs of design**.

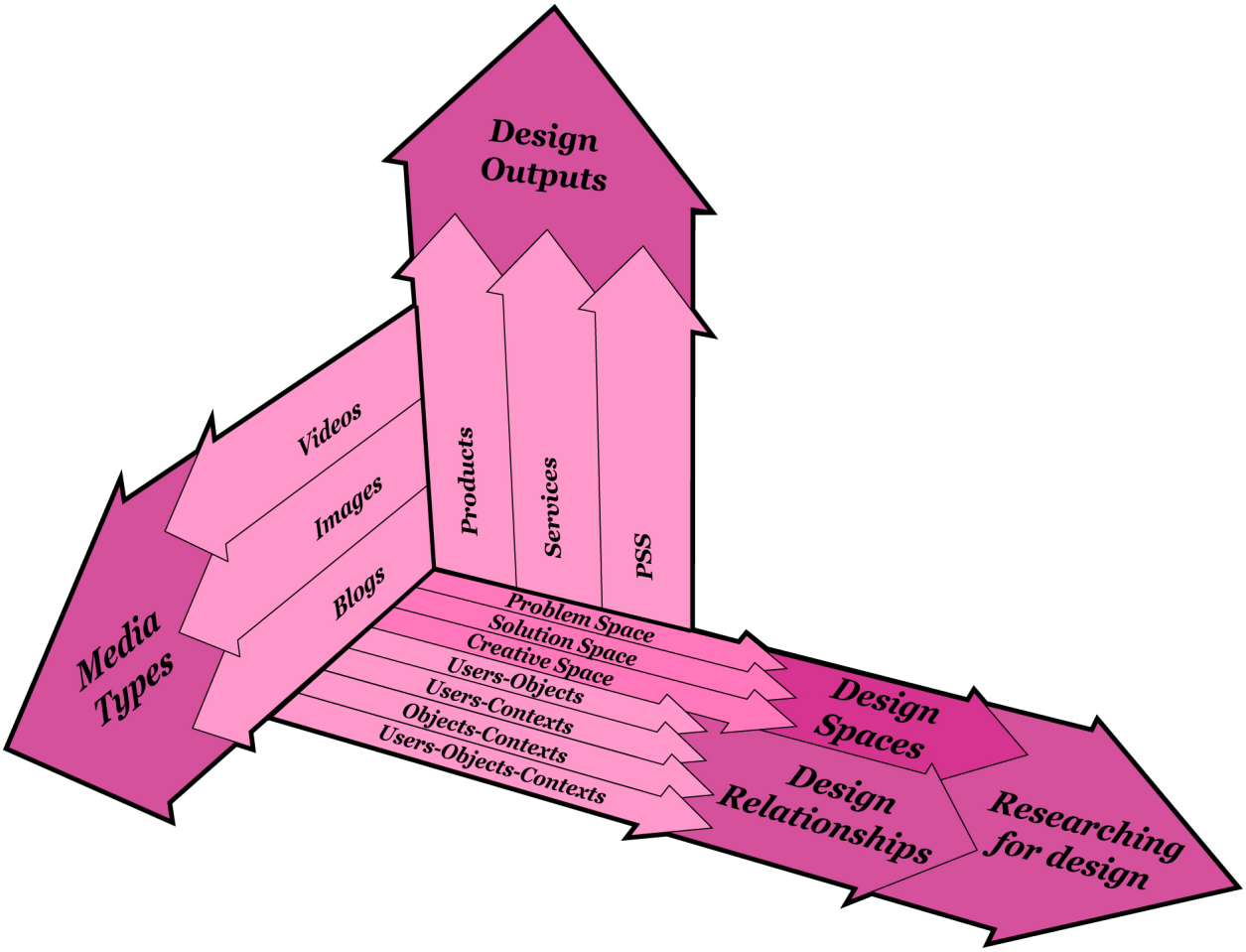


Figure 9. The three variables under study in this research.

The collected information comes in three **types of media** which represents the third variable. In chapter 1, we discussed the types of participation. We now focus on users' blogs which provide information in the form of text, the photo sharing site Flickr which contains images taken by users and YouTube which presents streaming videos uploaded by users. We chose these three means of communication because we are also interested in contrasting and comparing the types of information coming from each type of media.

With these three variables, the matrix with which we concluded the previous chapter can be updated to a three dimensional scale as is shown in figure 9. We completed this matrix with elements of content that can be found in the three media types of user generated content over the Internet: at Blogger for blogs, Flickr for images and YouTube for videos. We considered pertinent content that which provided information relevant when researching for design.

Our methodology has been predominantly of a quantitative nature[94]. However this research also entails a qualitative dimension with respect to the methods of data collection that call for a fair amount of judgement on the part of the researching designer. Even when following the descriptions given of the variables in the proceeding chapters, deciphering whether or not a piece of user generated content falls into one category or another does rely on the interpretative and perceptual abilities of the researching designer. In the end however, the following discussion of the results will have a quantitative foundation before concluding in a qualitative fashion.

3.2 How can we conclude on our methodology?

After reviewing the evolution of the design methodology over the past decades and examining three different fields of design that apply participatory practices, we reveal their possible benefits and downfalls. We then focused on the advantages of professional participatory design when creating the methodology for this study. But in the end, because the user wasn't active and conscious of his involvement in the design process, we concluded

[94] For more information on the qualitative and quantitative research, we refered to:
Creswell, J.W. (2003) *Research design: Qualitative, quantitative and mixed methods approaches.*

that this study could not be considered as centred on participatory design. Consequently, we decided to study the methodologies and techniques of user observation.

Although the method of observation that best applies to this protocol is that of pure observation, the variety of content that can be collected resembles that which can be generated by other observation techniques and participatory design practices. This causes some difficulty in precisely defining our approach as we find ourselves standing on the boundaries of participation and observation.

The variables at play in our research were identified as the area of researching for design, the design outcomes and the media types. When researching for design, we look at what the users are referring to in the design process in terms of spaces and in terms of the design relationships. The three design outcomes are those providing the benefit of mobility via the use of the private automobile in the case of a product, of a car sharing program in the case of a PSS, and of a taxi in the case of a service. And finally, the three media types of user generated content are text, images and video. Each element of pertinent user generated content found in our research was categorized until we had collected 50 samples of information for each cell of our 3D matrix. To do so, we used the search feature of the three media sites. Then we searched with words relevant to cars, taxis and car sharing. Finally, we filtered the content, categorizing it by design space and by design relationship.

Before beginning this protocol, we did establish the limits of this methodology in terms of quantifying the ratios of the types of information. The ever changing database requires us to portray the situation qualitatively in terms of its relevance with the design outcomes. The following chapter will do just that as well as present the results and establish the relationships between the three presented variables.

4. Comparing and Contrasting Results

In this fourth chapter, we will present the results of our study. Then, we will answer the questions that we asked in the beginning of this research. What kind of information are users submitting online? And to what type of design output is this information most pertinent? To answer these questions we will rely on the results we obtained in our field research and we will discuss these results for each of the three variables: researching for design, design outputs and media types.

The researching for design variable is composed of two parts; one inside the other. Firstly, we have described the design process the perspective of Jones, as being a constant cyclical movement in the problem space, the creative space and the solution space. Again, we wish to remind the reader that this also refers to Findeli's "thinking, judging and acting" loop for a designer dealing with complexity[95]. The second level of researching for design is found in each of these three spaces. The design itself can be broken into relationships amongst the user, object and context. We therefore characterized each piece of collected data into four types of relationships: user-object, object-context, user-context and user-object-context.

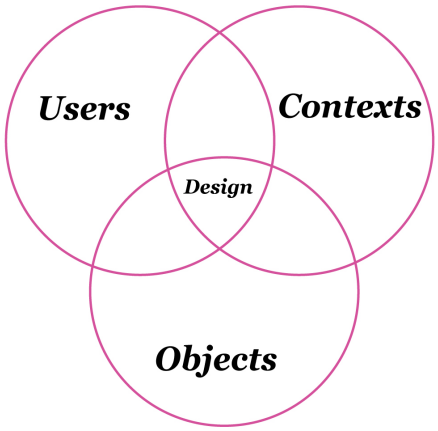


Figure 10. Design research elements.

The design outputs were described in chapter 2 as being on an axis separating the product from the service. At one end is the industrial product and at the other is the purely intangible

[95] Findeli, A. (2007) Conference « Penser et Agir dans un monde complexe »

service. Somewhere between these two poles, we find product-service systems that offer a product as a part of a service. So the design outputs are product design, PSS design and service design.

Although we didn't have a formal research question on the media types we studied, our data does allow for us to draw conclusions on what media type users have been using to express their thoughts within both levels of the design process when researching for design.

In the end, we hope to establish relationships between the variables and the results in order to contrast and compare each element we studied. Finally, we will propose ways to use this information in researching for design.

4.1 What type of information pertaining to researching for design are users submitting online?

The short answer is all types of information. When looking for videos pertaining to the problem of mobility with cars, one of our search strategies targeted people driving to and from work. A multitude of users have simply documented their ride home by installing a camera on their dashboard. This gives us the user's point of view in the context of the ride back home. What can we gather from these demonstrations of user experience? Is there a common demonstration of use in products, PSS and services? When it comes to car sharing, a typical video was that of someone swiping their card on the dash board receiver unit. There were also multitudes of videos of cab rides in New York which applies to showing the experience of the taxi service. So, what do these frequently documented experiences portray? Does it represent the highest area of impact of the whole user experience? Can we generalize by saying that cars are often used for driving to work, taxis are often used by tourists and car sharing on the other hand is relatively new and therefore showing how it works is more on people's mind than how they individually use it? The answer is no, we can't generalize.

Using user generated content for generalisation purposes is diminishing the potential of these sources of user content. Generalising would be trivialising. In fact, no two videos were alike. If we go back to users filming their ride home, in some cases we can actually see the driver's movements as he is filmed from someone sitting in the back seat. Sometimes, the

car sounds are present, other times, a music track has been added to the video. Then, there are some who have accelerated the frame rate of the video 16 times to show a longer journey in a few minutes. And finally in this sub series of driving to work another driver shows off how he dangerously weaves through traffic going to work late. No matter how similar we all feel a drive to work is, when it comes to actually submitting content online, everyone has a different approach, a different story to tell. The Internet has enabled designers to witness the complexity of the situation.

To put it briefly, our research indicates that **all** aspects pertaining to researching for design were covered by user generated content. The following paragraphs will show, with many examples, how the users participated in the three spaces of the design process. Each of these spaces seems to beg a different theoretical question, which will begin a longer discussion on how this information can serve the researching designer.

4.1.1 In the Problem space?

Some users that presented elements of the problem space were simply demonstrating a situation they were living. Whether it be a video of a user driving directly against the oncoming traffic in India (my car YouTube 45), a blog entry that exposes car-sharing stats (car-sharing blogs 41) or an image of a person hailing a cab (taxi Flickr 50), the information that is found in the problem space comes from documenting their point of view and their everyday activities. Even though driving against traffic isn't everyday activity in North America, it is in India. The situation becomes a problem when seen with the eyes of a designer. Hailing a cab in New York can be frustrating, thus starting from this image of a woman with her hand out, leads to imagining new ways of haling a cab. Could it be with a colourful LED light the size of a ring? So, in these cases, the situation or activity wasn't presented as a problem, but was in fact part of the problem space.

Driving against Traffic in India

Inversely, some users did present their situation as a problem. Take for example the woman who entitled her video: "Should you smoke in your car?" (my car YouTube 30). This user is fully conscious that driving with a cigarette is a problem. Although trying to look fabulous, we see her a little flustered while handling her cigarette and changing gears. The image of a car-sharing web site that got hacked reveals the problem of security (car sharing Flickr 28). And this user also speaks of security as he is aware that taking a taxi can be a leap of faith: "If you decide to take a taxi to work, you will have to trust your life to the vehicle and the taxi driver" (taxi blogs 25). These cases show that elements of the problem space have been clearly identified so by the users. They are participating in determining what the initial situation that needs to change is. This begs the question:

4.1.1.b How can designers learn from the point of view of the user?

In researching the shift from user-centered to participatory design approaches, Sanders has been a pioneer in helping the user articulate his unspoken feelings, inexperienced needs, and unthought desires[96]. Starting from one's innate visual abilities, she has created the games, tools and experiences that simplify the involvement of participants in the design process and thus enrich what can be extracted from the process by the designers. So far, in professional participatory design, the focus has been on need intensive tasks involved in developing a particular type of product or service. These need intensive tasks have been assigned to users, along with the tools needed to carry those tasks out. Inversely, solution intensive tasks have been assigned to manufacturers[97]. This contrasts with our research, where both needs and solutions can come from users.

The coming together of the various practices of science in formulating the problem space and the creative leap implied in the solution space is where Sanders sheds new light on the design process. By believing that *"People want to express themselves and to participate directly and proactively in the design development process"*, she has actually developed tools and strategies to do so. In fieldwork such as videotaping participant observations and

[96] In applying the social science of psychology and anthropology to design research, Sanders calls herself an experiment. She dates participatory design at the end of 1999 when the designers and social scientist started respecting each other's particular field of interest within the user experience. This coming together of the practices of science and creativity is where Sanders sheds new light on the design process.

[97] Von Hippel, E. (2005) *Democratizing Innovation.*

follow-up interviews, designers can understand the nuances of users' everyday practices[98]. Sanders uses many diagrams to illustrate her research findings, all to show users' capacity to express themselves.

Learning from Users		
Expression	**Activity**	**Nature**
Saying	Saying	Explicit
Thinking		
Doing	Doing	Observable
Using		
Knowing	Making	Tacit
Feeling		
Dreaming		Latent
Designing		

Table 4. Learning from Users. Inspired from the model shown by Sanders (2002) in *From User-Centered to Participatory Design Approaches*.

Sanders shows many inverted pyramid models all with same general idea of the users' capacities to express themselves. From saying, thinking, doing, using, knowing, feeling and dreaming, users communicate their explicit, observable, tacit and latent knowledge. The following table quickly synthesizes the subtleties and relationships between what users create, and the nature of that self-expression. However, Sanders inverted pyramid model better suggests that there's more quantity and simplicity of communication at the top.

Similarly to Sanders' writings, our research shows that users are providing elements of the problem space from which designers can extract explicit, observable, and even tacit needs. Although Sanders' methodology can be without a doubt more targeted to the design problem at hand, our own methodology can be applied quickly and without much effort to get a pulse on users needs starting from his point of view.

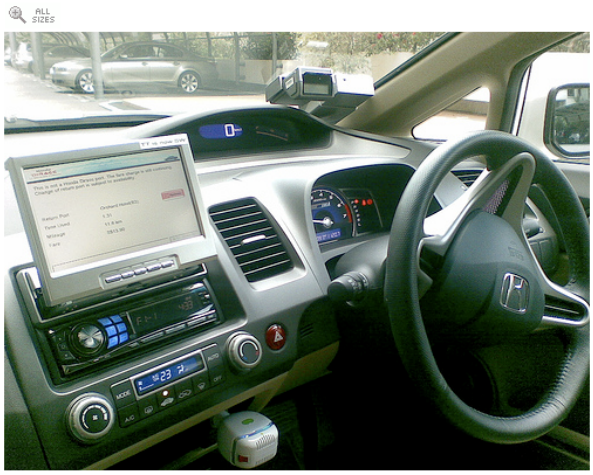
4.1.2 In the Solution space?

The solution space isn't characterized by being conscious or not of the situation because the information presented is addressing an existing problem. However, much of the content

[98] Schuler, D. and Namioka, A. (1993) "Participatory design: principles and practices".

provided, referring to the solution space, was extremely focused on one single aspect of the situation. When a midwife shows how to deliver a baby in a taxi, this situation within the greater idea of mobility isn't common occurrence (taxi YouTube 17). Maybe taxis should be equipped with an emergency baby delivery kit? When looking at the picture of the dashboard of a car-sharing vehicle, we see an on-board computer (car sharing Flickr 39). It becomes the starting point for a process similar to reverse-engineering: reverse-designing. The same way reverse-engineering takes objects apart to understand each element separately, as a designer, we study the how the elements of the solution interact within the system. We look to understand the relationships at play. We begin hypothesizing how it all works together, how the user can benefit from the way the system is set up. Does the screen give information pertaining to the distance, time and cost of the trip? Can you search for available parking?

Singapore Honda hybrid car sharing



For this user, his car answers his need for freedom (my car blogs 35): "I really value my independence, and I don't think I'd know what I'd do without it." The solution space content is very narrow-minded and lacks the bigger picture perspective that the design process requires. Even by adding up all these elements of solution spaces, the needs addressed remain quite varied. Nevertheless, the information pertaining to the solution space can be "recycled" into elements of the problem space of the researching designer. Therefore we ask:

4.1.2.b Can the user's point of view on the solutions become a starting point for designers to create better experiences?

As described in chapter 2, a change in concept can come from seeing the new in terms of the old. That is to use the situation at hand to change our perception of the old. This is a shift. Schön calls it a displacement of concepts, describing it as making the old interdependent to the new, arriving to a new gestalt. New concepts happen as a result of this shift.

While remaining in a form of reflective practice[99], the designers can then reflect and add upon the users' generated content which is unbiased by a design education or culture. This process is similar to the professional participatory design process proposed by Bødker[100]. Ultimately, we propose this brainsourcing as a parallel activity to a designer's original brainstorming. While still involved with researching for design, the designer's perspective on the sum of the participants' ideas can help him to better understand the bigger picture, the complex systems and the emergent schemes.

The collective aspect of the participatory design process can help generate more ideas by resonating within the user group and thus rebounding into another idea, in displacement of concepts. In Praquin's design and complexity master's thesis[101] on collective idea generation, it was difficult for the participants to detach themselves from their personal perspectives and see the world from another's point of view. This comes with no surprise, as Schön who has proposed the theory on idea generation was also aware of these limits. In this case, Schön makes clear that "*closed minded and narrow minded describe not only pathological conviction but conviction generally. And conviction is necessary for directed action*."[102] Often, the most striking and innovative solutions come from realizing that your concept of the problem was wrong.[103]

For displacement of concepts to happen in participatory design, the creation of a common language or translation between the participants and the users is the most critical aspect[104]. It was therefore expected and comprehensible that the participants might not engage in the concept shifting aspect of the process proposed by Praquin. However, within this participatory like process, designers can learn from the content provided by the users and use it as a starting point towards concept shifting. In other words, the user-generated content provides food for the designer's research as he moves into the creative space.

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[99] Schön, D. A. (1984) *The Reflexive Practitioner.*
[100] Bodker, S. Iverson, O.S. (2002). "Staging a Professional Participatory Design Practice " .
[101] Praquin, E. (2005) La generation d'idées en conception: une activité collective.
[102] Schön, D. A. (1963) *Invention and evolution of ideas.*
[103] Raymond, E. (2006) "The Cathedral and the Bazaar"
[104] The Scandinavian software researchers, Finn Kensing and Andreas Munk-Madsen, wrote an article on participative design called "Pd-Structure in the toolbox". Their main objective was to suggest a model for understanding the communication paradoxes between participating users and developers. Their research led them to believe that PD design efforts that fail are caused by misunderstanding between users and designers.

4.1.3. In the Creative space?

By creative, we refer to content which displays ideas or concepts that still need refinement to satisfy a need, that still are in the process of design. Inversely, the creative space also contains ideas that don't satisfy any need yet offer another point of view on the subject. Creative art is often an example of this. In a few words, the creative space is characterised with content which reveals potentiality.

Accordingly so, the users who present creative content display the highest potential material when researching for design. They are participating in the process of design by submitting their ideas, their wishes or their original points of view on the situation. Their level of participation requires the highest amount of effort because it demands a personal involvement in bringing change to the situation. These users are engaged in making a difference. When a user makes a stop motion video with Lego figurines to present the simplicity of car-sharing (car-sharing YouTube 21), he is making a point through this creative scenario.

The next case in the creative space is different because it shows a creative use of the media that is blogging. This user utilized her blog to ask if anyone wants to share a cab to the airport (taxi blogs 39): "I'm leaving at 4:00 pm to get there 5:00ish. Save us both some cash and join me." The creativity here is not only linked to the problem of mobility by forecasting the wish to split a cab, but shows a creative use of the media itself.

The melancholic image of a rainy drive home reveals the feeling associated with daily mobility (my car Flickr 28). In reality, it is the creative Photoshop work with filters on the image that gives off that emotion. In this case, the creativity serves no greater purpose. It's more a question of creating a new perspective on the problem. It's a direction taken without much rational underpinning. This makes us ponder:

4.1.3.b What is this gap between reason and creation?

The primary generator is the first step when the designer begins moving into the creative space. When the pencil finally marks the white page and begins working towards creatively solving the problem. When enunciating the concept of the primary generator in the design process, Drake also stumbled upon the rationality gap that exists between what is on the paper and how it can forecast the thinking that gave it life.

> *"Clearly in some cases where architects have described their own process of design, a visual image came very early in the process. In other cases it appears that a certain amount of preliminary analysis takes place before the visual concept arises. It seems normal, however, for there to be* ***"rationality gap****": either the visual concept springs to mind before the rational justifications for such a form, or the analysis does not dictate this particular concept rather than others. The concept or objective that generates a solution is here called the "primary generator". It can in fact be a group of related concepts rather than a single idea. These objectives form a starting point for the architect, a way into the problem; he does not start by listing all the constraints. Any particular primary generator may be capable of justification on rational grounds, but at the point when it enters the design process it is usually more of an article of faith on the part of the architect, a designer imposed constraint, not necessarily explicit."* [105]

When looking at some of the creative content of the users, we find that rationality gaps are remarkably present. Sometimes, it can be as simple as not understanding why the user created this content. For example, an image of a cat taxi driver driving a scared mouse (taxi Flickr 52), a grimacing New York taxi driver (taxi Flickr 53) or this evocative image of a woman

[105] Darke. J. (1984) "The primary generator and the design process".

driver's foot seen through the steering wheel where the word airbag is out of focus (my car Flickr 52). In these cases, like Drake exposed, an image is so powerful that it is hard to understand what its implications for the ensuing design are. So we ask:

4.1.3.b How can user generated creative content serve designers?

The task of getting users to create themselves starts with emphasizing the difficulty of waking the creativity within. As we have mentioned, Sanders has been a pillar in developing such field study methods and design activities to build the bridges that lead the user to use his knowledge and apply it to idea generation. The goal of the designer is to integrate "systemic analysis, appreciative intervention, and practitioner participation" to create conditions that reduce the gap between design vision and users' reason.

Before moving on to the next discussion of the variables in this research, the creative space revealed content that brings a capital question. We thought it important to raise this question here, although it will be further debated in the next chapter. This next example is the most fruitful aspect of the creative space. From the comfort of her bed, this user wants to improve mobility with a taxi service by proposing a golf cart shuttle service from the mall (taxi YouTube 32). She begins a conversation by inviting other YouTube users to respond and continue the discussion. The creative space is characterized by the idea of a project. In other words, it is characterized by the potentiality of change. Amidst the vast amount of content on the Internet, some users are actively participating by submitting creative ideas to solve problems. Can those users be considered designers? We will look into this question in the next chapter.

4.2 What are our answers to the research questions?

4.2.1 Are users providing information pertinent to research for design?

The answer to that question is evidently positive. All aspects of the relationships between users, objects and contexts have been addressed by user generated content. We will now review a few examples of how each of the 4 categories was in fact tackled in terms of the videos, images and blogs we collected.

4.2.1.1 Users-Objects

The relationship between the user and the object has revealed an emotional attachment like in the case of this user who loved his car before his crash (my car blogs 43): “my car is like my backbone”. This relationship can also take on the form of a special use of the object, referred to earlier as **exceptions**, when many users at a time are squeezed into the back seat of a cab (taxi Flickr 20). Also, the content provided by the users like in the case of this car-sharing barrier troubleshooting video (car sharing YouTube 44) reveals the user-object relationship as a how-to or an instructional video demonstrating the proper use of the object. This also was part of our initial research in chapter 2 where Courage & Baxter were calling it **standard steps**.

4.2.1.2 Objects-Contexts

The object-context relationship might seem paradoxical because it is void of the user and at the same time, it is the user submitting the content. The picture of cars in wet snow (my car Flickr 28) portrays this relationship even though the user taking the picture isn’t part of the content. We focus on the contextual conditions and how the object must respond to such an environment. Inversely, in this video showing simple images of cars (car sharing YouTube 22), the titles explain how the car’s characteristics can be put to profit in a car-sharing service. Again referring to the theoretical description in chapter 2, we relate this to **norms** that should be implemented. In the blog entries, the relationship between the object and the context is explanatory, revealing the rationale behind certain policies of the product-service system (car sharing blogs 18): “Cars are less likely to be involved in an accident if they are being driven less. Thus, car insurance companies appreciate this lower risk and lower their prices appropriately.” This comment on the insurance policy links back to the notion of **structure** of a system.

4.2.1.3 Users-Contexts

The user-context relationship is characterised by elements of the experience that do not include the object. The simple walk to the car parking lot is definitely part using a car. This video doesn’t feature the vehicle until the very last 10 seconds (my car YouTube 22). Basically, the user was showing the 2 minute walk that she takes to actually get to her car. Therefore this relationship over extends the object and is mostly present before and after the use of the

object. The image of all the content in someone's wallet (car sharing Flickr 49) shows the context in which the car sharing service card is kept and divulges the identity that users wish to portray as a form of **style**. From this blog entry on taxi services (taxi blogs 18), we see that the user is providing insight into the context of getting out of the house 20 min late for work and how the taxi service is the solution. By exposing the mindset in which people operate, for instance when running late, we are studying such elements as **culture**.

4.2.1.4 Users-Objects-Contexts

Where all three elements of the design (user-object-context) are present, the experience of the design is concerned. The content that shows relationships amongst all three elements is more evocative of the design situation. Simply put, an image of a car in a parking lot focuses on specific parts of the design situation (car sharing Flickr 18); where as a panorama picture of a user in his car driving down the freeway (car sharing Flickr 42) reveals a greater perspective pertaining to the design situation. The presence of the three elements adds to the richness of the demonstration of the experience. For example, this blog entry speaks of how the taxi ride provides a "breathing space", and gives the user some "alone time" (taxi blogs 14). This blog entry reveals the **informal structures** that subconsciously work towards creating experiences. The experience that is portrayed in the video of a car wash ride (my car YouTube 48) complete with laid back 70's music and soap buds on the windshield is telling of the cleansing atmosphere that not only makes your car shine, but makes the user feel clean too. This illustration of a slower **movement** is one part of the experience flow.

In summary, all aspects of the user-object-context relationship are present in user generated content. Therefore, it is up to the designer to target the relationships most pertinent to his research in order for the user content to provide deeper understanding of the situation.

4.2.2 Is the information provided by the users more pertinent in designing products, PSS or services?

Comparing the results qualitatively in terms of the design outputs reveals little insight because the data collected has been as present and diverse in all three cases. It is true however that finding information on car sharing was a little more difficult. We attribute this to the fact that it's a rather new system. Nonetheless, we have found some differences in qualitative terms.

We wish to strongly preface that the results we will show in the next section are representative of a general approach to searching user-generated content. As we have suggested earlier, if a researcher wishes to pursue certain aspects of the design process or certain user-object-context relationships it is possible to filter out or focus in on any given aspect. Also, some content could have been classified as part of two categories. But we chose to limit each piece of content to one information relevant to one aspect of the design space and one relationship. Lastly, we wish to remind the reader of the complexity of this research with respect to the ever evolving content on these websites of user participation.

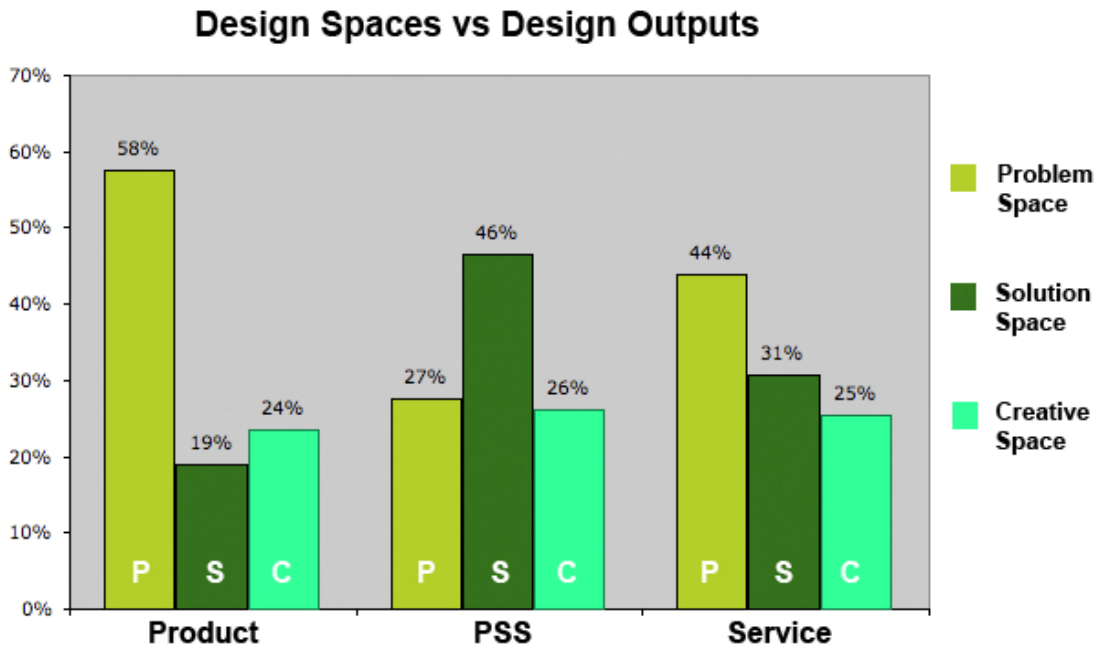

Figure 11. Design Spaces vs. Design Outputs.

This first graph compiles the data collected by adding up the content relevant to the problem, solution and creative spaces. The biggest element of discussion here is that more than half of the content submitted about products is pertinent to the problem space. It's the only significant majority of this graph. If it wasn't for that spike, we could conclude that all three outputs attract similar amounts of content in each of the design spaces. On another front, the most significant conclusion that can be drawn is that **1 out of every 4 submissions is creative**. And, this is a constant amongst the three design outputs. Users are creative no matter whether speaking of products, PSS or services.

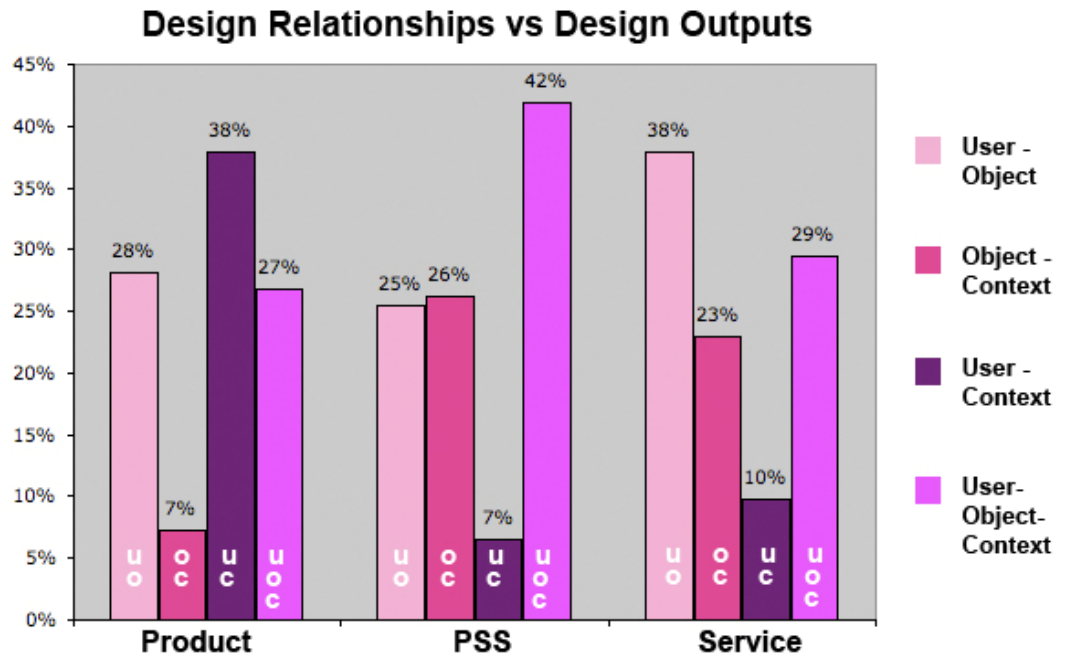

Figure 12. Design Relationships vs. Design Outputs.

The second graph compares the different relationships when researching for design contrasted with the outputs of design. The first element of discussion here are the three extremely low results. In our research, we collected little product information in terms of the object-context relationship. This is no surprise. The users we researched provided content from their point of view which usually implies their presence. Very rarely have users talked about their products without including themselves in the process. This comes in opposition to the way experts detach themselves from the products they study. Our research shows that users aren't providing rational, objective content. They are providing their opinions and personal experience with their products. This refers to the knowledge versus meaning debate we explored earlier. Secondly, little product-service system or service information pertaining to the user-context relationship was provided. Inversely, in the product output, the user-context relationship was the most collected. At first, this comes as a surprise. Why would the relationships implicating the object be more present in services and PSS than in products?

We propose a tentative answer. The importance of the object is more of a preoccupation to the user in cases of services and PSS. This is what Hollins calls **touchpoints**[106]. They are tangibles or interactions that make up the total experience of a service. Because of the intangible nature of services and PSS, the user turns his attention to that with which he can physically interact and take a certain form of ownership. The car sharing service results showed many users enjoying the idea of using a car they wouldn't otherwise have the chance to drive. Some users deem worthy posting pictures on their Flickr account of a hybrid Prius (car sharing Flickr 10), a sporty Mini (car sharing Flickr 51) and a large SUV (car sharing Flickr 45). In a few words, users are highly impacted by the products within a PSS. This is a great discovery that creates a heavy argument for furthering the implication of designers in the elaboration of services and PSS.

The second element of discussion coming from this graph is the three high rises. We have already seen how the user-context relationship is very high in products compared to PSS and services. This links PSS and services in terms of their results. One element of the PSS does stand out. As foreseen in chapter 2, the holistic experience is indeed a significant factor to the design of product-service systems. We ask ourselves why do users provide so much content about the experience of car sharing? We believe that users who take part in a PSS are more active in the use phase and aren't concerned with other factors such as repairs, modifications or other surrounding elements of the product. These other elements were quite present in the product related content. For instance, three roommates share their story of how they rented a Zipcar in San Francisco to participate in a triathlon in San Jose (car sharing YouTube 54). The main basis of their video was to show how they used the car as a means and not an end. This contrasts with some videos where the users show the process of renting out a car. This user breaks it down to three steps (car sharing YouTube 31) while another shows it as one continuous experience (car sharing YouTube 34).

In some videos that showcase the experience of driving one's vehicle, the user becomes the focal point of the video because the main content is the user driving to the coffee shop (my car YouTube 54) or the frustration of being stuck in traffic (my car YouTube 40). This reiterates how even though one would think that videos of people driving their car would be centered on the object, it is in fact the user that commands most of the attention. In the case of the service, we see content similar to that of car sharing where the main focus of the videos isn't

[106] Hollins, B. (2006) "Service design glossary of the Design Council ".

the taxi or the user but the experience of using the taxi service as an impromptu overnight hotel (taxi YouTube 18). This creates a divergence between products where the focus of the experience is mostly on the individual user and services where the focus is the experience itself.

4.2.3 How did users employ each type of media?

Although the focus of this research is mostly on researching for design, we did collect data on the different media types. The following graphs provide some insight into the way users naturally use videos, images, and blogs to communicate their point of view.

This following graph was constructed by adding of all the content of products, PSS and services in each media type, then classifying it depending on which area of the design space it refers to. We start by pointing out the large variance between problem, solution and creative spaces in the blogs and the relative balance in the videos and images.

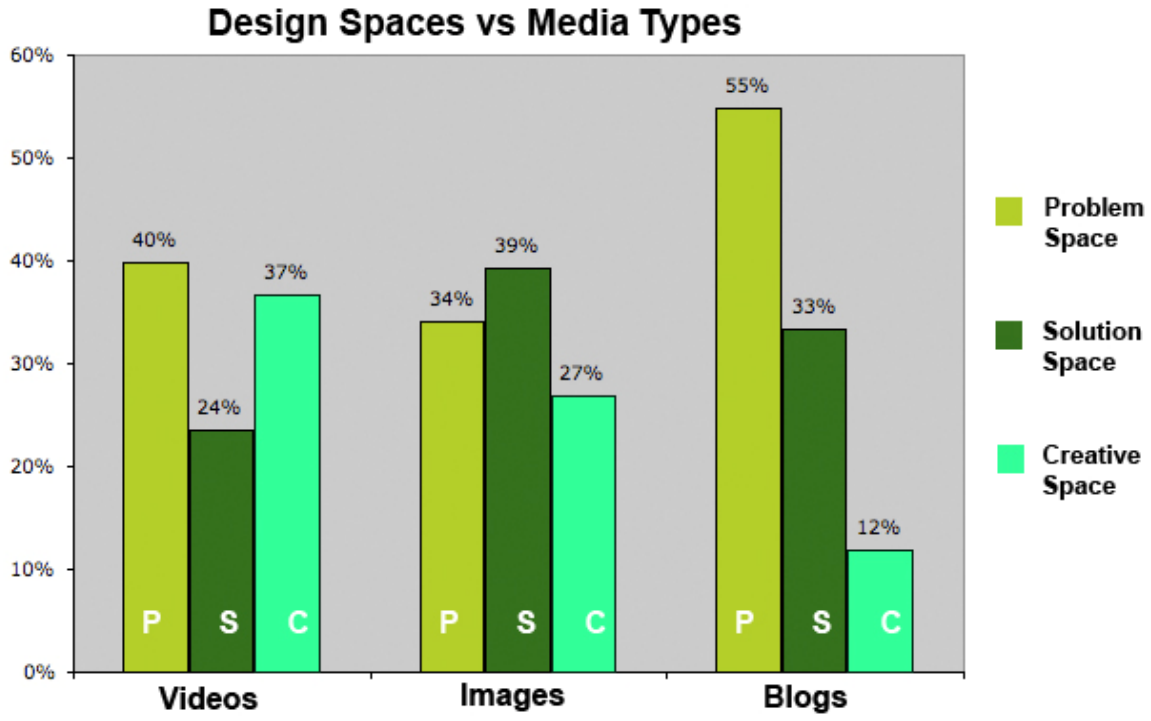

Figure 13. Design Spaces vs. Media Types

The results for the blogs show that users are more inclined to present elements of the problem in their writings. This comes as no surprise since words can convey their thoughts

and feelings on the situation. Furthermore, users provided elements in the creative space half as often when writing in blogs. This leads us to think that images and moving images are more suited to portraying elements of creativity. In other words, our study shows that users are potentially twice as creative with images as with words. This ties back to the age old saying of “an image is worth a thousand words”.

Now, we direct our attention to comparing the videos and the images. Interestingly, it seems as though the results are inversed when it comes to the solution space. Videos weren’t the medium of choice when presenting solutions, whereas images seemed to better convey the solution aspect of the user-generated content. There isn’t a significant margin to identify a trend here, but just enough to ask the question: why were videos less used to present solutions? Our first tentative answer would be that videos are by nature closely related to time and present progress. The solution space is often fixed in time. It presents a finished step, an accomplishment, a realized project or an existing answer to the problem space. Thus, videos are less likely to feature such a fixed result. Take this example (car sharing YouTube 36) of a university representative speaking of their car sharing service on campus. The narrator simply speaks in front of the camera with a car in the background to explain the initiative they have put forth. Although this is a video, no movement is required to describe the solution. An image with some text could have conveyed the same information.

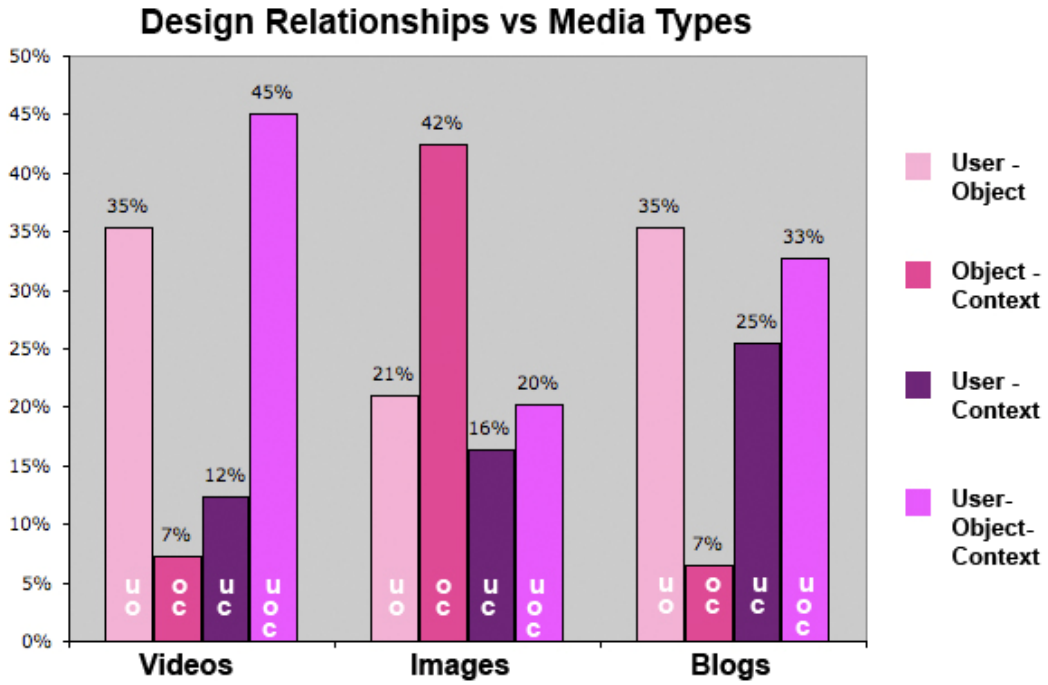

Figure 14. Design Relationships vs. Media Types.

This second graph takes into account the media types by adding all the content of each design relationship no matter the design output. By comparing all three media types, we notice that each one tells a different story.

The videos have been widely used to express the experience of the user. This reinforces the idea that videos are sensitive to time and flow. User experiences are closely linked to the scenarios thought out by designers. The designers who worked with Manzini in Everyday Sustainable Projects proposed video sketching to give a sense of the experience[107]. Similar to the designed service of that scenario, the user films his own experience (car sharing YouTube 9). What's truly amazing is that some users are actually creating scenarios of their own, much like designers would (car sharing YouTube 10).

The second highest reoccurrence is the user-object relationship that also refers to the use of the design. Videos void of the context can be taken in studio to emphasize the user-object relationship, but the users in our research didn't employ that technique. Rather they simply do not take into account the context. They solely focus on the user and, in this case, her love for the car sharing service (car sharing YouTube 40). The same could be argued for this video (my car YouTube 39) entitled "Driving Skills" featuring "the car" and "the driver". The video does take place in a particular parking lot and road, but could be any parking lot or road of any country. So in the end, a vast majority of videos are used to showcase users using the objects sometimes with and sometime without taking into account the context.

Images, the second media type, show great potential in depicting one specific relationship of the design: the object-context. Why would most content reveal elements of this relationship between the object and the context? The answer comes from the absence of the user. Taking pictures of users can be intimidating for the photographer as well as intimidating for the protagonist. Taking pictures without the user is a much simpler task. Everything remains still for the framing of the picture to be well planned. Take this picture of the user's car as seen in the mirror of another car (my car Flickr 47). Would this mirror fixed to the back of a car be an altruistic device to help other drivers see if a child is in front of their own car? Nonetheless, the user isn't present in these pictures and the focus shifts to the relationship

[107] Manzini, E. and Vezzoli, C. and Clark, G. (2001). "Product service-systems: using an existing concept as a new approach to sustainability." Journal of Design Research, Vo1. 1, No. 2.

between the objects and the context. Another example is this car that was damaged when left in a parking lot for 2 months (my car Flickr 54). The object-context relationship also allows for great images of artistic merit like this one of a car going into a tunnel (my car Flickr 14).

Lastly, blogs have told the opposite story of the images. The object-context relationship is not as present as in any other relationship. This can simply be attributed to the fact that most blogs are written in the first person point of view. This means that the user is often at the center of the content. Retracting themselves, as an impartial observer would, and discussing the object in context doesn't seem to be the reason for which users are participating in blogs. Take this rare counter example of the founder of car sharing Portland who blogged about the business model of other services (car sharing blogs 56). He blurs the lines between user and expert as he analyses the pros and cons of the system that was designed in Germany. Far more common are the personal perspectives given from the user's standpoint. This user described his whole experience with the Philly car sharing service (car sharing blogs 43): "I drove a Toyota Prius, which was a treat in itself. I actually felt "smarter" driving that thing about town." This last citation further exemplifies and links back to the idea that the object, as a central touchpoint, has a high impact on the user. From our results we see that bloggers usually employ the first person point of view and therefore the ensuing design relationships that involve the user.

4.3 What are the limits to this research?

The first element limiting the outcomes of this research is that the online content is ever growing and evolving. There's no way of accurately keeping track of the ratios between each type of information. We were conscious before starting our research of this limiting factor. Moreover, with the data provided on the participative users in chapter 1, we see that most of the content has been provided by people under the age of 26. This also influences the content available online. That's why the question of this research focuses on a qualitative and not purely quantitative approach. Nonetheless, our study will take a snapshot of the current situation on which further research will be able to build. Our goal is first to establish the presence and give an appreciation of the types of information relative to researching for design in user generated content.

The second limit that needs to be discussed comes from the qualitative nature of this study. Even when following the descriptions of each design space and design relationships as

mentioned in chapter 2, the interpretation of each piece of content as relevant to one category remains the interpretation of the researcher. Furthermore, the content was categorized according to its predominant concept. In this study, we restricted each sample to one category as some content could have two independent concepts that are relative to two different categories.

Lastly, the wording of the search efforts have a great influence on the content. We choose not to limit the style or the amount of wording of the searches. We consider it a skill that can be improved much like sketching. It would be difficult to establish a clear protocol for searching in these massive online databases because the search wording evolves depending on the results of the previous search and the interests of the researcher. The existing algorithms of searching also influence the results. In the Flickr engine, images can be sorted by date, relevance and interest. Again, this is another factor that can influence the content that comes out of the searching method. Not to mention the possibility of surfing from one video to another related video with the suggestion algorithm. Therefore, the downside of not intervening in the flow of the researching experience is that the results can vary greatly depending on the researcher's skill level.

4.4 As designers, what have we learned from this research?

By looking at the results in terms of the three variables, we were able to learn how users have been naturally yet unknowingly contributing to the design process. It is through the eyes of the designer that the user generated content can leap into the design process.

Content pertaining to the problem space was a good example of how some users were conscious and explicit of the problem as well as how some users were coping with a problem situation that could require a designer's intervention. We then examined how helping the user express his point of view can in turn help designers frame the problem space.

The content that related to the solution space showed existing products and services to answer the user's needs. So as designers, we are prompted to use this existing solution and propose alternate approaches in concept shifting. Thus, the user's point of view on solutions helps designers enter their own creative space.

The creative content we have studied has brought up the concept of a rationality gap. Some users create breathtaking content but to no ulterior purpose. Others create content that seems to emulate that of a designer by offering their point of view on a preferred situation and then on initiating change. Here, the idea of potentiality pervades the content.

We then continued further in researching for design to understand how users were providing information pertinent to research for design in terms of user-object-context relationships. Studying examples from each of the four relationships revealed the presence of the concepts that we used to characterize these relationships in the second chapter, notably: exceptions, standard steps, norms, structure, style, culture, informal structures and movement. We believe that, if needed, all concepts can be found in the content present online. It's just a question of finding the right keywords for the search engine to bring back these types of concepts in the results.

Based on a quantitative combination of the results, we were able to determine for which of the three design outputs users were more inclined to provide information. We cross-referenced the content concerned with the two levels of researching for design with the three types of design outputs. When focusing on the design spaces, we noticed that more than half of the content submitted about products is pertinent to the problem space. What's more, 1 out of every 4 submissions was relevant to the creative space.

When looking at the second level of researching for design in the relationships at play, we were able to discover even greater outcomes. Firstly, rarely have users talked about their products without including themselves in the process. They aren't detached from the content they provide. Secondly, the relationships implicating the object are more present in services and PSS than in products. We believe that because of the intangible nature of services and PSS, the user turns his attention to that which he can physically interact with and take a certain form of ownership. Thirdly, users provided much content about the experience of their PSS. We attributed this finding to the fact that users who take part in a PSS are more active in the use phase and aren't concerned with other factors such as repairs, modifications or other secondary elements of the product. Fourthly, we observed a divergence between products, where the focus of the experience is mostly on the individual user, and services, where the focus is on the experience itself.

Still based on the quantitative analysis of the results, we were able to establish with which of the three media types users chose to submit content relevant to the two levels of the researching for design. Just like when speaking of their products, users have been more inclined to present elements of the problem space in their blog writings. In contrast, users provided elements in the creative space twice as often when submitting videos and images. We concluded that images and videos are more suited to portraying elements of creativity. However, when it comes to presenting elements of the solution space, videos weren't the medium of choice. Images seem to better convey the fixed aspect of solutions to design problems.

Then we contrasted the second level of researching for design with the three media types. Because videos are sensitive to time and flow, they were widely used to express the experience of the user. In the end, most videos were used to showcase users experiencing the objects. On the other hand, images depicted one specific relationship of the design: the object-context relationship. Taking pictures without the user is a simple task. Lastly, blogs are written in the first person point of view, directly implicating the user in the ensuing relationships.

So far, we have learned how user generated content is pertinent to researching for design. We have also described how designers can use this content in their own design process. Now, we are left with one last line of questioning. Is the Internet democratizing the design process? Are users becoming designers? The next chapter will circle back to our initial research on complexity, the Internet and this field study to begin responding to these formidable questions.

5. Conclusions to Consequences

This research has studied user generated content over the Internet when researching for design. In the previous chapter, we compared and contrasted the results of our field work with user content. In short, we demonstrated that designers have much to benefit from user generated content because users submit elements pertaining to all spaces of design and reveal elements in all the relationships present in a design situation. These findings have initiated a final line of questioning that addresses the role of the designer in light of the user's creative online participation. Two main questions will be discussed in this chapter.

The first question concerns the tool that has become the Internet. As discussed in the first chapter, the Internet is supporting larger amounts of participation which is affecting fields that touch media and culture. So we ask: is the Internet democratizing the design process? Secondly, the research has witnessed first hand how users have put forth their creativity. They have done so to such an extent that we wonder how their creativity impacts the design profession. In other words, can users be designers?

To answer these questions we propose to circle back to this research's foundation in complex design and participatory design, as well as in our field study conclusions. This will lead us to a final thought on how the relationship between users and designers can change our perception of the design activity.

5.1 Is the Internet democratizing the design process?

For this debate, we define democratization as the process of making something accessible to everyone. We choose to use the word democratization in the same sense with which Von Hippel wrote the book *Democratizing innovation* where

> *"When I say that innovation is being democratized, I mean that users of products and services—both firms and individual consumers — are increasingly able to innovate for themselves. User-centered innovation processes offer great advantages over the manufacturer-centric innovation development systems that have been the mainstay of commerce for hundreds of years. Users that innovate can develop exactly what they want, rather than*

relying on manufacturers to act as their (often very imperfect) agents. Moreover, individual users do not have to develop everything they need on their own: they can benefit from innovations developed and freely shared by others."[108]

It involves the transition from an authoritarian system to a system ruled by its users. The Internet has been a democratization tool because it has given its users the power to create content and interact with other users freely. We wonder what consequences can come from this shift of power to the users.

Before entering this debate in terms of design, we will reconsider how the Internet has influenced other domains such as media and culture. As an author studying how the Internet affects culture, Keen is alarmed by the downside of Internet democratization[109]. He demonstrates how amateur journalism can trivialize and corrupt serious debate. In this case, the ideals of Internet democratization are undermining truth and belittling expertise, experience, and talents. He characterizes user generated content as an outburst of mass exhibitionism. In his view, user generated content has replaced deep analysis with superficial observations of the world around us. We are accepting shrill opinion, rather than considered judgment. One of the consequences of the rise of Internet participation is less culture, less reliable news, and a chaos of useless information. On the other hand, he states that the real value of citizen journalism is its ability to address niche markets otherwise ignored by mainstream media. In the end, the value of mainstream media is that it provides a common frame of reference, a common conversation, and common values. Then again, that monopoly is also at the root of its demise. What is wrong with wanting to democratize systems? Isn't it the ideal of democracy that everyone can voice their opinions?

The society in which we live today requires highly specialized professionals. These professionals receive years of education and nothing short of excellence will prevail. Specialization has come from the ever growing depth of knowledge and consequent division of labor. In contrast, Keen argues that by empowering the amateur, we are undermining the authority of the very experts who contribute to creating reliable information and sources of culture. He believes that a radical democratic culture is hardly conducive to scholarship or

[108] Von Hippel, E. (2005) *Democratizing Innovation.*
[109] Keen, A. (2007) *The Cult of the Amateur: how today's Internet is killing our culture.*

the creation of wisdom. In the fields of media and culture, the Internet is a tool for democratizing the system to such an extent that it is menacing the very foundation of theses fields. With these examples in mind, we now wonder how the design field can be influenced by the democratizing affect of the Internet.

In 2006, Bonsiepe shared a broader perspective on the relationship between democracy and design. The first dimension that was touched was ethics within the multiple practices of design. The modernist past is evoked because of the way rational problem solving created an ephemeral spike of interest for a designed product that paid no attention to the ensuing relationships that were experienced. The concept of democracy that Bonsiepe favours reduces the domination of external forces, like authoritarian designers. The democratic ideal is a quest for autonomy of thoughts, of actions and of dreams. This means that both designers and users need to be revolutionary when fighting against authoritarian systems. In Bonsiepe's perspective, the concept of democratic design was "*freedom, in action and reflection, to formulate and carry out an ideal*"[110]. His view on democratic design can be summed up as "*autonomy of projecting*"[111].

Many researchers and practitioners advocate participatory practices because it breeds the values of democracy into civic, educational, and work settings. It has been proven by the works of Pateman that one benefit of participatory democracy is the acceptance of the ensuing decisions[112]. This democratic value can be seen in the strengthening of disempowered groups, in the improvement of internal processes, and in the combination of diverse knowledge to make better services and products. Subsequent work supplemented the founding democratic motivation with a need for combining complex knowledge for realistic design problems. Recently, Beck started a new discussion arguing for the necessity to recapture participative design's political dimensions[113].

In Scandinavia, the idea of democratic design was developed for practical reasons and for the use of technology at work[114]. Historically, trade unions were seen as vehicles for

[110] Iversen, O. S et al. (2004) "A Visit to the 'New Utopia' Revitalizing Democracy".
[111] Bonsiepe, G. (2006) "Design and Democracy".
[112] Carole Pateman is a british feminist and specialist in political theory. In 1970, she wrote "Participation and democratic Theory". She takes a problem-oriented approach to political theory and is concerned to bring theory together with policy and empirical evidence.
[113] Beck, E. (2002) "P for Political: Participation is Not Enough."
[114] Iversen, O. S., Kanstrup, A.M., Petersen, M. (2004) "A Visit to the 'New Utopia' Revitalizing Democracy".

industrial democracy. In the context of democratization at work, a participatory approach to the design process alone was not sufficient [115]. In such a context, the definition of democracy was simply "freedom". This goes one step further than what Bonsiepe proposes. Yet, this early vision of democratic design is less pertinent as it has no boundaries and isn't oriented towards attaining an ideal.
Nonetheless, Scandinavian democratic participation brings an interesting element to this discussion because it sees the people as the means of the process as well as the ends. Therefore, in participative design, democracy involves more than the formal right to vote. This particular understanding of democracy in the sense of promoting active participation relates to the Internet allowing emancipative proposals to answer needs of social groups. Not to mention that all the information and the activities taking place on websites are easily documented, time-stamped, classed and memorized. This creates an asynchronous and democratic approach to project development, therefore allowing more people into the conversation.

Naturally, this form of user self-publishing comes with its disadvantages. Let it be said that the Internet doesn't automatically imply democracy. The negative sides of the Internet create a form of *"maocracy"*[116]. Many people do not have access to the Internet, and many do not have sufficient knowledge of computers to actively participate in the process. Nonetheless, the Internet has proven that it can be a catalyst for initiating change. Basically, the Internet is levelling hierarchy with its network. No other place could allow for users to integrate the design process with the same amount of participation.

When there are too many end-users for everyone to participate directly, representative democracy is another avenue for implementing participative design. So many users have embraced the Internet that quantity is no longer the problem, yet the quality of participation is to be evaluated. Bonsiepe brings up the advent of technology which modifies the design questions to symbolic inquiries that can be more in touch with the users. For example, instead of a designer asking users to redesign a bus, one could ask users to describe their experience of getting to work. And in such cases, Bonsiepe describes the role of the designer as making these invisible functions visible. If we project this understanding to the Internet, the designer's role could be to make the invisible function of the Internet as a

[115] Ehn, P. (1993) "Scandinavian Design: on Participation and Skill".
[116] Lanier, J. (2005) "Digital Maoism: The Hazards of the New Online Collectivism".

democratic design tool visible. In other words, this research has shown how the Internet has become a means for users to express themselves and now we hope to help designers encounter, engage and encourage this creative content.

To conclude within this context of democratizing the design process, the Internet has given the users a space to express themselves and tools to engage in changing situations. If we stay close to this meaning of design democracy described as the autonomy of projecting, we could state without a doubt that users are taking advantage of the Internet's openness and structure to develop their own projects. The same way Sanders has been creating tools and exercises for users to speak up, the Internet has been embraced as a means of creative expression.

Sanders states that the task of getting users to create starts with designers waking the creativity within users. In addition, Sanders believes that people want to express themselves and to participate directly and proactively in the design development process[117].

> *"The new rules are the rules of networks, not hierarchies. People are cynical about the methods and goals of consumerism. The users of products, interfaces, systems, and spaces are realizing that through networking they have an enormous amount of collective influence. They are beginning to use their influence to get what they want, when they want it and how they want it."* [118]

This brings us to the change in the designer's role, which she views as facilitating the expression of the user's needs and dreams. This new role has the practice of designers and social researchers not just coming together, but completely fading one into the other. This new breed of design researcher will create the tools to let the user express his creativity, then analyse and interpret user generated artefacts and models, and this process will lead to inspiring innovation. In professional participative design, the role of the designer changes because the user takes on some of the creative aspects in the process. Similarly in our studies, we have witnessed first hand the vast quantity of creative content submitted by users on the Internet. This has led us to ask if users can be designers.

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[117] Sanders, E. B. N. (2002) "From user-centered design to participatory design approaches"". in *Design and the Social Sciences - Making Connections*, ed. Frascara, J. London: Taylor & Francis Books Limited.

[118] idem

5.2 Can users be designers?

The initial response to this question is another question. What is a design? We have touched on this when citing Simon's definition of changing existing situations into preferred ones. With such a wide and open definition, anyone who devises plans of action for the future could be considered a designer. Our research wishes to challenge this line of thinking. Although it isn't the definition of design that is at stake here, we do want to make a point concerning the profession of a practicing designer.

From the results of our research, one element that distinguishes the work of designers from the content provided by users is scalability. Users do not work to solve problems experienced by a multitude of other users, while designers work to satisfy the needs of many. This is in accordance with the definition of design provided by the International Council of Societies of Industrial Design (ICSID) written in 1995, where "*design is a creative activity that consists in determining the formal properties of the objects that are produced industrially.*"[119] The strength of this definition lies in the fact that it implies a specific technical capacity[120]. Since most users aren't demonstrating technical capacities in the content they generate, they aren't thinking in terms of large production. In point of fact, the strength of user generated content is exactly the opposite. Its focus is on the user's point of view and thus void of technical limitations.

Today in 2008, ICSID has readjusted its definition of design: "*Design is a creative activity whose aim is to establish the multi-faceted qualities of objects, processes, services and their systems in whole life cycles.*"[121] This brings into play another element that differentiates the content created by a designer from that of users. It is the holistic point of view on the project and the whole design situation. The designer is aware of the bigger picture including the life cycle when proposing a solution, whereas users are more focused within one of the three spaces of design or one of the relationships that is part the design project.

As a researcher on user participation, Buxton states very clearly that we are not all designers. He opposes the idea that anyone who chooses the colour of a room and the

[119] Tomas Maldonado wrote this definition used by the ICSID.
[120] Deforges, Y (1995) "Avatars of design : Design before design".
[121] www.icsid.org

layout of the furniture in their living room can be considered a designer. To better understand this problem of terminology, he proposes to look at the difference between a mathematician and someone doing arithmetic. Anyone can add up the products bought at the grocery, but that doesn't make them a mathematician. Medicine is another field that can be used to illustrate the difference between users and designers. Within medicine, there are different levels of practice. Nurses, paramedics and physicians, all care for patients. Even patients care for themselves. But there are skills and aptitudes to be developed, in order to earn the title of professional and subsequently practice as a medical doctor. The same concept of developing skills and aptitudes can be applied to understanding the nuances in the practice of design.

On the first hand, we can affirm that when reviewing our field research very rarely have users demonstrated content of similar quality to that of designers. Then again, that wasn't our prime objective. In this study we weren't specifically asking users to be creative; we simply compiled the content readily available. In that respect, we wish to strongly underline that users can be particularly creative. In fact, this research wishes to build on previous efforts studying user generated creative content[122] and continue demonstrating how users can be just as creative as designers. What we have proved here in this study is that users are creative even when not specifically asked to be.

On the other hand, there are some rare individuals who are blurring the line between user and designer. These lead users have decided to solve their own problems and have made it possible for others to take advantage of their creativity. For example, we found some blogs that were held by entrepreneurs who take design decisions when starting their own companies or when creating custom products. Relating back to the phenomenon of Professional-Amateurs, these exceptional users are stepping into the design process. Although in such cases, the Pro-Am's skill set is specific and his knowledge is focused. In this case, the user demonstrates an understanding of the level of professional designers within their particular passion, but that still does not make them general practitioners of design. That's why the line between designers and users is not often blurred as the process of design is a method that can be taught, learned and applied. More importantly, designers have learned that the design process can solve problems no matter what the problem situation is.

[122] Joyce, A. (2007) "Crowdsourcing creativity: Participatory design over the Internet".

What continues to distinguish designers from users is the main skill that has always been in the designer's toolbox: the ability to draw. Jones sees this as the common action of designers of all kinds. Buxton agrees and adds that design is accompanied with a form of drawing called sketching. According to Buxton sketching is a good indication of the presence of the activity of design. To which we must nuance that this doesn't ensure the person sketching is a designer.

This idea of sketching brings a new angle to analyse the content when looking back on the videos, images and blog entries of our field research. Only a small amount of the user generated content contained a distinctive form of sketching in the form of actual hand drawings. However, we did collect some creative scenario sketching either with actors playing out a design situation[123] or in a use scenario of a creative project. For users to sketch in the form of scenarios ties back to Carrol's thoughts on communication between designers and users in participatory design. Carroll suggests a few possibilities for common ground in participatory design.

First is scenario building. This is where the user is the director of the scene and he is forced to reflect on how he is going to satisfy his needs. And Carroll sees even more in this approach: "*Because all stakeholders are able to create stories of envisioned user experiences, scenario-based design allows non-designers to participate as creators as well as critics.*"[124]

The second possible means of common communication are prototypes as they provide "*an evolving framework for exploring design options, and gradually focusing on a final solution.*"[125] Prototypes, or the proper term maquettes, also represent a physical incarnation or even an explanation of ideas.

The last common ground for communication amongst participants is organisational representation. Take for example mind mapping software. To assure all parties understand the relationships between the different elements, a visual representation is required. This

[123] These acted out scenarios sketch out design situations, similar to the way "sketch comedy" provides comic relief from set situations.
[124] Carroll, J.M. (2006) "Dimensions of Participation in Simon's Design"..
[125] idem

creates a level understanding field, which helps the participants conceptualize the situation at hand. Therefore organisational representation presents a common point of view of the problem.

This common language in scenarios, prototypes and organisational models seems less adapted to product design and seems to cater more naturally to services design. That's why we believe that further studies should investigate if participatory design leads principally to designing better services rather than designing better products. In point of fact, a study on user involvement in service innovation revealed that the users produced more original ideas than the company's professional service developers[126].

Adding to the voice of conscientious users, designers are no longer asking the question how can things be done, but why should they be done. The evolution of society is auto-regulated by, amongst other currents, the design field. Participation is just one of the ways that designers can interact with society to map out the intentions of design. When stakeholders participate in the design process, the role of the designer is that of a facilitator of collaboration. The responsibility of the outcome doesn't fall squarely on the shoulders of the designer, as his focus is on assuring the process is right[127]. Consequently, the design profession is moving from proposing solutions for people's problems to enabling problem owners to generate their own solutions.

Understanding design as a communicative process is also uncovered by the works of Schön. He treats design primarily as a relationship between designers and the design material. In doing so, Schön emphasizes that design competence is foremost the ability to orchestrate the mutual learning process from the relationship between the design practitioners and the design material. But presently, we are moving into another generation of design research methods where the actors are becoming the central focus of the design process[128], not material objects. The communicative and dialogical aspects of designing remain, but instead of designers having conversations with materials, they are beginning to have conversations with the users.

[126] Kristensson, P. et al. (2002) "Users as a Hidden Resource for Creativity: Findings from an Experimental Study on User involvement".
[127] Jones, J.C. (1970) *Designing Design.*
[128] Bousbaci, R.& Findeli, A. (2006) "Eclipse de l'objet" .

5.3 How is researching for design generating conversations?

Coyne and Snodgrass bring a new way to perceive the design activity by studying the works of philosophers in understanding language. From this framework, they have established that design is a conversation with the situation[129]. It is distinct from Simon's perception of design as working towards "preferred situations" which gives the impression that surprises aren't possible. In the spirit of a conversation with the situation, logic comes after hermeneutics. Living before thinking. In such a case, surprises in a back and forth conversation can lead to preferred situations. This perspective neatly ties into Schön's concept of reflection in action and allows for the concept of surprise. This is yet another push driving the design process away from the positivist model into a constructivist approach. It also circles back to the foundation of a complex approach to design with which we started this research thesis.

Coyne and Snodgrass unite to explore a metaphor from the works of prominent writers on language to describe the design process. They begin by reviewing Wittgenstein's description of language as atomistic elements that, when assembled within the laws of grammar, form sentences. This relates to the positivist method that was projected onto design during the modernist era. But then, how come we understand the words in the middle of a sentence?

The answer to that question came from another German philosopher, Gadamer, who developed the concept of conversation. The meaning of the words is made possible at all times because of the context of the conversation. We move from the words to the context and back, gathering the information along the way. This movement comparing the parts to the whole is key in creating an understanding. And in some cases, it even leads to anticipation or creation. This same back and forth movement has been felt in our research when going from studying the user's content to the designer's brainstorming.

In the initial states of the conversation, we project a meaning to the whole. During the development we are constantly referring, refining and redefining our understanding depending on how the anticipation rings true with the present information. The same can be said for design. It starts with an interpretation of the situation. The further the project is developed, the more questions are answered and the more information is collected. Meanwhile, the designer can adjust the initial projection. In the end, the creativity emerges

[129] Coyne, R. & Snodgrass, A. (1997) "Is designing hermeneutical

from the back and forth movement leading to a better understanding of the relationship between the whole and the parts. Again, this resonates with the complex approach which is more interested in understanding the relationships amongst the parts than deepening the knowledge of the parts themselves.

When describing design as a conversation, many thoughts have come from Gadamer's works on hermeneutics. For example, one doesn't start a conversation, one falls into it. A conversation is of a participative nature. It involves all present.

> *"Thus is the characteristic of every true conversation that each opens himself to the other person, truly accepts his point of view as worthy of consideration and gets inside the other to such an extent that he understands not a particular individual, but what he says."* [130]

Because of our innate hermeneutical approach to experiences, interpretation is our method of engagement into the contextual world we live in. In a complex design approach, prejudices and values surface in the designer's interpretations thereby creating a consciousness of his point of view of within the conversation with actors.

Based on Gadamer's works on dialogue in conversations, the authors demonstrate how the design activity is less similar to a positivist and logical understanding of language and more apparent to a contextual and dialogical understanding of a conversation. We concur with this shift from a conversation with the design materials to a conversation with the actors or users within a design situation. The research for design phase begins with framing a problem the way a conversation begins with a question. Problems do not exist on their own. Someone needs to define, frame or conceive the situation as a problem. Ultimately, problems are summed up in the form of a question. Answering a question is a method to create a to-and-fro movement leading to understanding the problem. The initial question begins the conversation with the actors and the situation. The answer begs the designer for more questions. This defines the reflexive designer.

Not only is design a conversation with the situation, it's also a conversation starter amongst the actors of the situation. In our research we have seen how this conversation isn't about

[130] Coyne, R. & Snodgrass, A. (1997) "Is designing hermeneutical "

the designer's personal will, but about the user's point of view on the situation. This is what has led us to investigate the democratic aspect of the Internet.

In the end, being open to further questioning is essential to continue the design conversation with the actors and the situation. Design is not just the creation of a solution; it is about hosting a conversation towards change. Our research has shown how the Internet has proven to be a place to host this conversation. The participating users are engaging in the beginning of a conversation to share their needs and dreams. Designers can respond by aggregating and bringing nuances to the participants' discourses. Both users and designers working together towards making preferred situations emerge. Maybe the designer's role is not only to aggregate but beforehand to make all views understandable. By taking on the user's arguments and connecting in a true dialogue, design becomes a "formulation or explication of what is understood."[131] This type of emergence when researching for design requires the designer's interpretative skills and a global perspective on the situation. All of which is integrated in a constructivist, complex design approach to invite all parties to interact and create meaning. To conclude, this research argues for designers to take part in a complex design approach in order to include more points of view, to allow for debate and accept that there is no absolute truth when creating an ever evolving solution to a design problem.

5.4 What could our future work look to study?

This research has just begun to address the high potential of the Internet for participatory design. As designers establish means of coupling the creativity of users with a democratic form of online participation, the designed outcomes should better answer the needs of the users. Even more so, as designers begin thinking in terms of multiple users of a same product-service systems. In such a conversational process, more researchers need to study the communication aspects amongst participating users as well as between users and designers. A second avenue for future studies could focus on creativity itself. As we have shown in this research, user creativity is not a scarce resource. Yet giving users the chance to change existing situations with their creativity remains quite rare. Therefore, more research could help open the gates of the design process to nourish, foster and even measure the creative capabilities of users.

[131] Carroll, J.M. (2006) "Dimensions of Participation in Simon's Design**".** Design Issues.

5.5 What are our final conclusions?

In this final chapter we reflected upon three inherit themes to this master's research. Firstly, we reinstated that the Internet has proven to be levelling hierarchies and making way for people to participate in many fields. This has left us questioning if the Internet's democratization effect was reaching into the design process. No matter how small the presence of a utopian ingredient, reminiscent of the Scandinavian initiatives, the Internet has allowed for a form of democratization of the design process. Our research has shown that users now have a space and tools for autonomously projecting their needs and desires.

Secondly, we wondered if the amounts of creativity and problem solving aptitudes present in user generated content could lead to users playing the role of designers. The answer to this question was that very rarely users can take on the role of a designer. Even in such cases, lead users aren't professional designers. They lack the education and skills as well as a broader picture of the design process. Yet by demonstrating their point of view, users are generating content that is highly relevant to researching for design. Participatory practices have led the design field in this direction by including users in the early stages of the design process.

The relationship between designers and users requires new means of communication in the form of a common language. Of the three means of communications between users and designers we presented, scenarios were the most readily available. Some maquettes were presented but no organisational models were exposed. More importantly, this study has revealed that the Internet supports this idea of common ground in terms of a communicative language between users and designers.

The third question rose from the communication aspect of professional participatory design. We asked if when researching for design, designers could create understanding through conversation. In fact, this way of seeing design as a conversation between users and designers has impacted our point of view on the design activity itself. This doesn't affect the process of design described by Jones as a cyclical forward movement within problem, creative and solution spaces. Rather, the thought that design was a conversation with the

materials of the situation has changed to a conversation with the actors of the situation. This change in the focus of the design activity continues with the idea that we are moving into another generation of design research methods where design meets complexity.

General Conclusion

Whether it is the way we gather knowledge or the way we create culture, the Internet is changing many relationships in the world we live in. It is even changing the way we participate in projects. Essentially, this research studied how the Internet and user generated content can affect design.

Complexity provided a structure for this research as well as an approach to studying the Internet as a system that supports relationships between subject/ object/ environment/ project. The characteristics of the Internet have been described in the light of complex systems, demonstrating that the Internet is dialogical, recursive and hologrammatical. Furthermore, the open structure of the Internet has revealed to be a conductor of innovative practices.

In writing blogs, sharing knowledge in a wiki, reviewing services, uploading videos, user generated content shared over the Internet has been a contributing factor in aiding the social revolution of the Internet, known as web 2.0. This democratic space allows one to express views that are proper to his context. The open structure of the Internet made way for the professional-amateur movement, where users have begun to take over the net for their own purposes. Crowdsourcing is a prominent example of how this participation can become a means to a planned end. It has been used in this research as a method for harnessing user generated content.

We propose for designers to research and take advantage of this content. Our endeavours have been focused on understanding user generated content in order to better integrate it into the early stages of the design process. We asked two questions: What type of information does user generated content provide for design research? Is this information more pertinent to product design, service design or product-service systems design?

Our first step in answering these questions was to expose the key elements in the design spaces, design relationships and design outputs. We have seen that researching for design is concerned with three interconnecting design spaces, namely the problem, creative and solution spaces. Still in terms of researching for design, the relationships that are present in the design situation are between users, objects and contexts. These three dimensions reveal

needs and opportunities to be taken into account in the design process. Additionally, the importance of understanding users' needs and their point of view are recurring in the founding theories that support our three design outputs.

Exposing the founding theory on the design spaces, design relationships and design outputs was beneficial in distinguishing the variables in this research. We thoroughly described these variables to propose a methodology for studying user generated content. Inspired by democratic ideals, participatory design proposes methods to give a voice to the user in the design process. After reviewing how other fields have embraced participatory design principles, we then focused on the advantages of professional participatory design when creating the methodology for this study.

Following in the path set with the works of Sanders, this study should be considered as another means for designers to perceive tacit needs by allowing for users to express their ideas. As the users create freely and intuitively, expressing their latent inner desires, the designers can have a global point of view on the problem. Furthermore, this research has revealed many great implications and trends in the way users naturally communicate within the design process. We hope to have provided some insight into how designers can take advantage of all types of user generated content. Here are some of our findings.

It is through the eyes of the designer that the user generated content can become pertinent to the design process. For example, some content concerning the problem space revealed that users were conscious and explicit of the problem. Other users were also witnessing or living a remarkable situation yet they require the designer's point of view to formulate the situation as a design problem. Based on the quantitative aspect of the results, we noticed that more than half of the content submitted about products related to the problem space. Regarding the media choice, users were more inclined to present elements of the problem space in their blog writings.

The content related to the solution space showed existing products and services where images seem to better convey the fixed aspect of solutions to design situations. Starting from how these solutions answer the user's needs, we proposed to use a concept shifting strategy for designers to enter their own creative space. While remaining in a form of reflective

practice, we propose brainsourcing as a parallel activity to crowdsourcing when researching for design.

Lastly, we studied the creative content. Some users demonstrate astounding creativity but to no ulterior purpose, whereas others seemed to design by materialising their point of view on a problematic situation and then initiating change. What's more, 1 out of every 4 submissions was relevant to the creative space. From a media standpoint, users provided elements in the creative space twice as often when submitting videos and images.

Still concerning the second variable of researching for design, we revealed that all types of relationships can be found in the content present online. In terms of user-object-context relationships in the design situation, we were able to discover that rarely have users provided content about their products without including themselves in the process. Also, the relationships implicating the object are more present in services and PSS than in products. In these cases, the user turns his attention to that which he can physically interact with and take a certain form of ownership in. In a PSS, users are more active in the use phase which, we argue, led to the highest amounts of user experience content. Last but not least, we observed a divergence between services, where the focus is on the experience itself, and products, where the focus is mostly on the individual user.

Some factors did limit this research. The Internet is a complex and ever flowing river of information. Content grows and evolves over time. Secondly, the categorisation of the contents relies on the interpretation of the researching designer. Finally, the Internet keyword search method was flexible to allow for various means of accessing the vast amounts of available content.

In the final chapter, we reflected upon the consequences of our research on the field of design. Because the Internet has proven to be levelling hierarchies and making way for people to participate in many fields, we questioned the democratization aspect of the Internet on the design process. By participating actively, users are trying to influence the design of their experiences. Although these users might not have participated directly in the design process, the Internet has allowed for the user's to communicate freely their needs, experiences and ideas.

In addition, we wondered if users were taking on the role of designers. We concluded that users aren't taking on the role of professional designers because they lack the education, skills and broader understanding of the design process. Nonetheless, users have shown their interest and the relevance of their participation in the design process. This summoned a need for a common language between users and designers. We then presented the three means of communications between users and designers: scenarios, prototypes and organisational models. In the end, this study has revealed that users have embraced the Internet and designers have much to learn from their content.

The last thought coming from this research concerned creating understanding through conversation. In fact, describing design as a conversation between users and designers has impacted our point of view on the design activity itself. Before, design was described as a conversation with the materials[132]. Design is currently becoming more of a conversation with the actors of the situation. In that spirit, our research explored the wealth of online user generated content as a first step in conversing with the users thanks to the Internet.

As research on the design field progresses, we are becoming more conscious of the role design plays in the evolution of society. Moreover, today's design problems are growing in number and in size. To tame such problems requires a complex approach in order to enable the participation of all the actors of society in the design situation. Accordingly, designers are reaching out to users. Participation that takes advantage of the openness and structure of the Internet is just one of the ways that designers can have users interact with them to map out the intentions of design. Together, they ask not *how* can things be done, but *why* should they be done. By sharing their knowledge and experience the participants and designers will build the foundations to understanding our problematic situations and guide the way towards proposing creative solutions. The fundamental challenge – one that we also had to face – wasn't how to change the world but how to engage with the actors towards change. In the end, this implies a change in the nature of designing.

When stakeholders participate in the design process, the role of the designer is that of a facilitator of participation. The responsibility of the outcome doesn't fall squarely on the shoulders of the designer, as his focus is on assuring the process is right[133]. Consequently,

[132] Schön, D.A. (1983) *The Reflexive Practitioner*
[133] Jones, J.C. (1970) *Designing Design.*

the design profession is moving from proposing ready-made solutions to users' problems to enabling users to take part in the creative process of problem-solving. This change in the focus of the design activity continues with the idea that we are moving into another generation of design research methods where design meets complexity. Complex design hopes to promote this proactive and reflexive attitude. As design researchers, we're not just trying to create new products and services from new knowledge; we're looking to create more meaning from new experiences with users.

Encounter – Engage – Encourage

Appendices

1. How did design methodology evolve towards participation?

In the early 1960's, a change in design thinking was initiated with the founding conference on design methods research. This first generation of design methodology had been more concerned with understanding design than actually proposing better ways to solve problems[134]. The rational methodology was to begin with a primary generator[135], then the designer worked in a conjecture-revision, a step by step iterative process, searching for ways to align beauty of the form in line with the function[136]. This design methodology was mostly concerned with Descartes' division, analysis and synthesis[137]. Furthermore, by taking a rational approach to solving the limitations imposed by the different elements of the problem, this first methodology was still very distant from the everyday process of problem solving[138].

The second generation of design methods was looking to detach itself from a uniquely rational methodology. In fact, Alexander expressed his discontent with research that was distancing itself from doing design, and was leading towards a passive criticism of design. The emerging second generation became apparent for two reasons. Firstly, the field of design was in crisis. Rittel noted that when methodology enters a field, it's a sign of crisis within that field[139]. However the second reason was unacceptable to Alexander. He thought that it had come from fear. Fear of commitment, fear of decision making, fear of design.
During this second generation, Rittel advocated for the designer to work with the client, as they both share elements of the solution that need to be exposed during the process. The back and forth transit of the information relevant to the solution and problem spaces was inscribed in a rhetoric of argumentation to establish a hierarchy or priority in the issues to be sorted. Rittel called for a change in attitude. Already at this point, the idea of the stakeholders participating in the process was emerging in order to gather all the different views and arguments.

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[134] Alexander, C.(1964) "Notes on the Synthesis of Form".
[135] Darke, J. (1980) "The primary generator in the design process".
[136] Alexander, C. (1964) "Notes on the Synthesis of Form".
[137] Descartes, R. (1637) *Discours de la Méthode*.
[138] In this interview, Alexander spoke briefly of user participation in design : " I believe passionately in the idea that people should design buildings for themselves. In other words not only should they be involved in the buildings that are for them but they should actually help design them."
[139] Rittel, H. J., (1984) "Second Generation in Design Methods".

"The manner in which the solution comes about does matter in another way; that is that the experience of having participated in the problem makes a difference to those that are affected by the solution. People are more likely to like a solution if they have been involved in its generation; even though it might not make sense otherwise." [140]

The third generation in design methodology produced an epistemology where professional practice is a problem solving process concerned with selecting the best known method to attain established ends. Science itself was not the problem, but the technical and rational position of science within the positivist paradigm. The analytical, empirical and logical perspectives of positivist objectivity do not solve the dilemma of "rigour versus relevance"[141] that designers are confronted with in everyday situations. Because professional knowledge involves experiences, feelings and subjective evaluations, Schön integrates daily life experiences and skills with the concept of reflection-in-action. It entails building new understandings to inform our actions in the situation that is unfolding. Moreover, the practitioner enters a dialogue with the materials of the situation. The epistemology proposed in the third generation now includes intuition, implicit to art, from practices dealing with uncertainty.

"The practitioner allows himself to experience surprise, puzzlement, or confusion in a situation which he finds uncertain or unique. He reflects on the phenomenon before him, and on the prior understandings which have been implicit in his behaviour. He carries out an experiment which serves to generate both a new understanding of the phenomenon and a change in the situation.[142] *"*

This theme of a dialogue with the design situation will resurface in participatory design in the present chapter as well as in the fifth chapter when reviewing how the user generated content on the Internet was used for research purposes.

[140] Rittel, H. J. (1984) "Second Generation in Design Methods"
[141] idem
[142] Schön, D.A. (1983) *The reflexive practitioner.*

In summary, there have been many generations of design methods research, from pure rationality to descriptive rationality to the present of reflexivity in practice. This evolution of the design research and the subsequent practice has led to multiple redefinitions of the design activity, the design process and the role of the designer. It can be described simply as a change from the old methods to new approaches[143]. The traditional product design orientation was challenged, favouring a process oriented approach to designing[144]. Design is now described as a process of devising systems, as participation, as creativity, as a discipline, and doesn't necessarily lead to a product[145]. Therefore, when speaking of methodology, we will focus on two of theses points of view on design. Firstly, design as a participatory activity with the involvement of the users into the design process. Secondly, design as a creative act which is potentially present in everyone[146].

As an expert within the participatory field, Muller defines participatory design (also referred to as PD) as *"a set of theories, practices and studies related to end-users as full participants in activities leading to software and hardware computer products and computer based activities"* [147]. This definition relates to computer science where participative design practices first began in Scandinavia[148].

User participation in the design process originated from software designers that were amazed by how their users handle real world situations. This was later called the initial fascination of user involvement[149]. In the case of software design, there is a disconnect between the functional focus of programming experts and the experience of ordinary people left perpetually upgrading hardware to meet the demands of new software[150]. A "gap in rationalities" has been observed that creates barriers between the developers' projected meaning and the users' actual understanding. The importance of this "gap" between the worldview of the designer and the specific view of the potential user is one of the motivations for participatory design. In-depth understanding of the translation of the problem among the

[143] Jones, J.C. (1970) *Design Methods.*
[144] Jones, J.C. (1991) *Designing Design.*
[145] idem.
[146] In the interview "Notes from synthesis to form", Alexander spoke briefly of user participation in design: " I believe passionately in the idea that people should design buildings for themselves. In other words not only should they be involved in the buildings that are for them but they should actually help design them."
[147] Muller, M.J. (2003). "Participatory design: The third space in human computer interaction."
[148] The history of the participative design has been well studied and described in the writings of Michael Muller in the early 1990's in "Participatory design: The third space in HCI."
[149] Bødker, S and Iversen, O.S. (2002) "Moving PD beyond the Initial Fascination of User Involvement."
[150] Gershenfeld, N. (1999) *When things start to think*. Henry Holt & co., New York.

users who directly participate in the design activities is key to a more effective, valuable, and direct partnership between designers and users[151]. This idea of developers imposing their design philosophy has been part of software design as well as product design. The practice of user participation is rising in an effort to democratize all types of design processes.

In the 1970's, the participative design approach came from a cooperative movement to counter the growing technological immersion into workplace settings. Participative design activities, comprising tools and cooperative techniques used within workshops, prototyping, and planning were developed to provide users the means to take an active part in the design process. During this period various different projects took place in Norway with Nygaard, Sweden and Denmark with Ehn and Kying. Considered as one of the founding figures in participatory design research, Ehn related the rise of this practice to an explicitly political context during the Scandinavian workplace democracy movement[152]. Initially, research-based participatory design projects were design alternatives to take into account user friendly solutions compared to mainstream solutions constructed by large companies[153]. Participative design approaches, propagating ideals of democracy, emancipation and quality, were essential when designing technology for the workplace[154]. Since then, Muller argues that the successes of participatory design in the Scandinavian countries will be difficult to reproduce in North America or Britain, because of significant differences in labour, legislative, and workplace environments[155].

In 1987, Ehn initiated one of the most famous participatory design action researches called the Utopia project[156] along with Bødker, another founding figure in PD research. Starting a long line of Scandinavian research projects in the health sector, these endeavours were still orchestrated in response to technical and organisational changes. Their design methods emphasised hands-on experiences with the problem-owners. A parallel project took place in Florence where Bjerkness and Bratteteig[157] were working particularly with nurses. They

[151] DePaula, R. (2004) "Lost in Translation: A Critical Analysis of Actors, Artefacts, Agendas, and Arenas in Participatory Design"
[152] idem
[153] Bødker, S. (2003) "A for alternatives".
[154] Iversen, O.S. et al. (2004) "A Visit to the 'New Utopia' Revitalizing Democracy, Emancipation and Quality in Cooperative Design".
[155] Muller, M.J. (1999) "The scandinavian challenge".
[156] Bodker et al. (1987) "A Utopian experience in Computers and democracy".
[157] Bjerknes, G., Bratteteig, T. (1995) "User participation and democracy".

developed approaches giving them a voice in the everyday work processes and in the information technology implementation in hospitals.

In the early 90s, Barki & Hartwick[158] studied user participation in systems development. They began by developing measures of user participation and their involvement in information systems use. Until then research on participatory practices focused on user participation but not user behaviour and their underlying motivations. The researchers perceive a need to define the terms participatory research. Most importantly, they distinguished the differences empirically between participation and involvement. They concluded that user participation refers to the behaviours and activities that users perform in a system development process. On the other hand user involvement refers to a psychological state of the individual, and is defined as the importance and personal relevance of the system to the user. Moreover, user participation is greater and more critical when there is a high level of user involvement. Simply put, when users are responsible for the output of the system, they are more involved, and their participation is essential.

When studying user involvement in conflict situations, Barki & Hartwick came to interesting conclusions. Although participatory practices inevitably create conflicts, the resolution of these conflicts depends greatly on the influence of the users. Therefore when users have greater influence on the outcome of the project, they are more likely to resolve conflicts to their satisfaction.

This notion of active implication of the user during the development of a project has recently been explored by many other disciplines, young and old. The field of participatory design has been applied to many diverse fields like user-centered design, graphic design, engineering, architecture, city planning, psychology, anthropology, sociology, and political science. However, in an attempt to define participatory design, the diversity of these practices has not led to a single theory, paradigm of study nor common approach to practice[159]. Rather, different perspectives focus on certain aspects of user involvement and most of participatory design theories and practices require simply the combination of multiple perspectives[160] .

[158] Barki, H. & Hartwick, J. (1991) "Explaining the Role of User Participation in Information Systems Use".
[159] Slater, J. (1998) “Professional misinterpretation: What is participatory design?”
[160] Muller, M. (2003) “Participative design the third space in HCI”.

As a researcher who focuses on the participation of users in the design process, Carroll exposes the underlying concepts of user participation by finely studying Simon's the Science of the Artificial. In fact, Carroll reveals 8 aspects of participative design from Simon's description of how humans try to control the natural world by designing the artificial world[161]. They are: Social aspects of design, identifying stakeholders, human development, human activity, understanding human activity, dynamics of design, intelligibility of design representations, and participation in design.

For example, Simon speaks of active people taking charge of their future and thus taking part in the design process. "The members of an organization or a society for whom plans are made are not passive instruments, but are themselves designers who are seeking to use the system to further their own goals." [162] From which Carroll then defines participatory design as "the direct inclusion of users within a development team, such that they actively help in setting design goals and planning prototypes." [163] This is the definition that we use when speaking of participatory design.

Simon emphasized that designers must consider the consequences of a design beyond the client's directly articulated concerns. For Simon, the designer has the obligation to act as a teacher, and not merely an implementer[164]. This sparks Carroll to investigate the intelligibility of the design activity, and the need for a common language. Carroll states that if users are to play a significant role in design, the design activity should be intelligible to all stakeholders[165]. In that objective, Carroll studied three tools that create a level playing field for designers and users to interact: scenario building, prototyping, and organisational representation. As we have seen in chapter 2 these activities are capital in design products and services. From the perspective of participatory design, these activities have become a "lingua franca". Carroll even characterizes the science of design as a "core discipline for every liberally educated person." With all the specialization taking place in the various fields, there has to be a way to bring everyone back to a common stepping ground. In the post-

[161] In the spring edition of Design Issues 2006, Carroll proposes "Participation in design" and.
[162] Carroll, J.M. (2006) "Dimensions of Participation in Simon's Design".
[163] idem
[164] Simon, H. (1962) *Sciences of the Artificial.*
[165] idem

industrial era that is said to be the information age[166], the common ground could be seen as the values that are conveyed in the language of design.

In contrast with Carroll's idea of users as designers, an interesting new practice of participatory design has come to clarify the roles of the user and the designers. Bødker and Iversen also begin by speaking of the initial fascination with user involvement coming from software designers who were indeed amazed by how their users handle real world situations. They felt that users needed to be implicated in the design process. And these researchers wished to go beyond this fascination, and go beyond the trial and error process. Consequently, they proposed that the participative process require the planning and intervention of the designer to insure its success. They call this professional participative design (proPD).

According to Bødker and Iversen, there are two questions that need to be addressed by the designer for the participative process to begin and follow through smoothly. They noticed the users required the "why" and "where-to" notions. Simply put, the "why" concept is a reflection on the main purpose of the project, an end-in-view. The other deficiency in the participative design process is that the general direction of the project is a hard path to stay upon. Off-loop reflection in terms of participants' introspection and discussions about the project are, in general, often treated as unprofitable idling[167]. In a professional setting, reflection is usually viewed as the budget buster and is therefore cut to a minimum[168].

Still when presenting professional participatory design, the researchers, Bødker and Iversen, attacked head on the criticism of participatory design in Vicente's "Cognitive work analysis"[169]. Vicente brings to the table some limitations to participatory design: leaving possibilities of new technologies unexplored, the use of incomplete design methods such as scenarios or prototyping, and the lack of purpose when analysing the design's progression. To palliate to these deficiencies the authors offer a frame set to facilitate the development of the project. They prone an interesting hybrid approach where the designer facilitates the process. They propose that the designer must envision a strategy for the entire process. This

[166] Pink, D. (2005) *A Whole New Mind*.
[167] Bødker, S and Iversen, O.S. (2002) "Moving PD beyond the Initial Fascination of User Involvement".
[168] Norman, D. (1988) *The design of Everyday things.*
[169] In *Cognitive Work Analysis* (1999), Vicente critiques PD and provides another program for designing computer-based information systems, based on detailed mapping of information flows, task constraints, and control processes.

strategy should evolve and develop itself depending on the users, the situation and the progress of the design activity. On the other hand, there is a line to be drawn between facilitation in proPD and an interventionist approach, where the designers give direction for the design.

In developing proPD, the authors respond to the limitations foreseen by Vicente. They propose using scenarios and prototyping and reflecting on the initial problem to have a sense of perspective upon the process. The authors state that the advantage of a professional participative design process is that it remains always in context because the designers implicate problem owners directly in the solution process. Another role of the designer in proPD is to identify and include the stakeholders into the participatory process. All this relates to what Cross has described as the rise of systemism or complexity in the post-industrial age, which reflects the direction towards which we orient this research.

> *"In the systemic paradigm, design is described as being participatory, anonymous, and democratic. The process is collaborative since it engages individuals from different disciplines in the process. It is democratic by giving those affected by design the right to participate in making decisions concerning the design. Participatory refers to the relationship between the designer and the others involved in the design process. The designer's role is now not to design for others, but rather to help others design for themselves.*[170]*"*

So far in this chapter, we have seen that some design problems can be addressed with participatory design practices. The approach that best caters to harnessing the needs and ideas offered by online user participation is the professional participatory design practice. The following section will further develop our research's participatory inspired framework by looking at three different fields of design where the problem solving process pro-actively includes the users.

[170] Cross, N. (1981) "The post-industrial Age".

2. How are participative design processes undertaken in other fields of design?

2.1. Information systems architecture

The article, “User involvement in the systems design process: a practical guide for users” [171], comes from a specialist in information technology systems design. It is clear that in such a design process, the users’ input is crucial to the success of the product or service. In fact, Damodaran states that this inadequate involvement of the users has lead to IT systems failing to deliver the benefits expected by the users for the past two decades. In this paper, she exposes the kind of structures that are required to insure the users have enough influence in the development process.

Criticism of participatory methods in the existing literature is that it deals with only some of the stakeholders in the design process. This perpetuates the idea that participatory design is a complex process that needs to take specific organization contexts into account. Therefore, the focus has so far been put on the point of view of the participatory design initiators and their need to be reactive and improvise depending on the context and culture of the participants and their organization. They are also advised to seek greater communication in the organizational structure by involving top and middle management into the process of getting users to participate. The point of view that has been largely discussed in IT systems design is that of the system experts or software developers. However, as Damodaran argues, the point of view of the user has not been explored in the past research on participatory design.

Damodaran begins by presenting problems coming from users in participatory design. In many cases, users are required to participate which doesn't bode well for the design team. It is said that the users are often lost in the process as they aren't briefed and do not understand their own role. This is similar to the “why” and “where to” deficiencies enunciated earlier by Bødker. Then there are user representatives that need to speak with other users. They try to come up with a consensus in order to represent the majority of users. Even though guidance is given, participatory processes can become meaningless “rubber-stamping” exercises. What she proposes is to structure an organizational context around the users either with a user representative or with an ongoing quality assurance program. The simple need for an infrastructure to support user involvement shows that the participatory

[171] Damadoran, L. (1996) “User involvement in the systems design process a practical guide for users”.

aspect might require more of an effort in itself than the design project. Although there are surely many cases where participatory design is recommendable, she makes one wonder if it is worth the trouble.

Nonetheless, Damodaran's writings are pertinent because she presents clear results, outlining the benefits and pitfalls of user involvement.

Pros:

1. Improved quality of the system arising from more accurate user requirements.
2. Avoiding costly system features that the user did not want or cannot use.
3. Improved levels of acceptance of the system.
4. Greater understanding of the system by the user resulting in more effective use.
5. Increased participation in decision-making in the organization.

Cons:

1. Process success dependant on users being able to influence decision-making.
2. Hostage role: Users not wanting to contradict the experts or designers.
3. Propagandist role: Indoctrinated users taking on the view of the designers.

Damodaran's conclusion is that for users to apply their knowledge and expertise to IT development, a user involvement structure must be provided that allows for communications mechanisms and services necessary to support the user involvement process. This led to the ongoing research in having users participate more naturally in the design process. Creating more structures of communication and coercing users into participation is not the answer. By creating the right atmosphere for users to participate wilfully and even unknowingly, researchers will have access to the user's unconscious needs and unexpressed decisional factors.

2.2. Low-cost housing Architecture projects

According to Lizarralde & Massyn[172], participation design has been present in other fields such as architecture and urban planning for over 50 years. More recently, the participatory

[172] Lizzaralde, G. & Massyn, M (2007) "Unexpected negative outcomes of community participation and low-cost housing projects of South Africa" .

current that has been put into practice has been taking into account the desires of local residents because they are the beneficiaries[173]. This can go so far as the community's will justifying a decision in the design process. In addition, what motivates the community members to participate in the projects is to take part in the decision making—more than the desire to benefit the community at large[174]. Also, the participants entertain expectations of receiving a return from their involvement in development projects[175].

When studying the outcomes of community participation and low-cost housing projects of South Africa, the first element of discussion that was brought by Lizarralde & Massyn was how difficult it is to determine the appropriate intensity of participation within a design process. They then referred to many other authors that had studied the different levels of participation and community involvement within projects. Furthermore, public participation takes on many different forms in the field. This contrasts with the reality observed by the authors where the participation in design took the form of "*consultation of pre-established layouts*".

One of the motivators for participation within the community is self-help initiatives. It is also believed that users are the best suited for making decisions concerning their own housing solutions and that they know what is "best" for them. Yet, projects depend on a complex interaction of participants, interests, objectives, resources and processes that go beyond the benefits of the beneficiaries. They argue that participation isn't giving value to the decision-making process. They also suggest that the desires of a community cannot legitimate a wrong decision, particularly if the desires of a group negatively affect the city at large. In other words, there are good and bad projects that apply community participation and the users do not necessarily make those decisions based on what is 'best' for them or for the city at large. Therefore, the authors argue that community participation cannot be an end in itself.

This research presented some of the common constraints to the community-based participatory approach including:

1. Difficulties to integrate the community in the design and management of the project.

[173] Ishmail, Z. (2005) "Evaluating the utility of participation in development projects".
[174] Emmett, T. (2000) "Beyond community participation: Alternative routes to civil engagement and development in South Africa".
[175] idem

2. Difficulties in building up mutual trust between agencies and communities.
3. Reluctance on the part of the governments to give substantial power to low-income groups
4. The reduction of participation to manual labour (referred to as sweat equity) instead of active participation in decision making.

The common constraints lived within a community-based approach that were studied by Lizarralde & Massyn could also be applied to service design projects. They speak of the difficulty to integrate the user in the design and management of the project, of the difficulty of building mutual trust between the designers and users, and the reluctance of designers to give decisional power to users. However in contrast with housing projects, the participation of users in the service design process will not be reduced to sweat equity in a construction phase. All these points remain true in the case of participatory design geared toward products and services, however instead of *user action* that requires more effort to mobilize, we look for *user information* which is in our hypothesis already present in online participation.

> *"Community participation is actually associated with a bottom-up approach as it is targeted at the grassroots developments and is based on the argument that this approach helps build self-reliance in the affected communities. This approach is usually contrasted with the top-down approach in which less input and resources are obtained from the local community."* [176]

In light of this, our research plans on taking advantage of the bottom-up movements of users participating online in creating content.

2.3 In Municipal Community Services

To establish the participatory aspects of this research, we took the time to review how other fields labour towards the same ideals. In this case, we're looking to see how urban designers and city planners integrate democratic ideals with citizen participation in developing public services. The first lesson to be learned from Fung's writings[177] on empowered participation of the community is that for effective deliberative practices to occur there needs to be what he calls *accountable autonomy*. Simply put, when decisions are taken, they need to be

[176] Lizzaralde, G. & Massyn, M. (2007) "Unexpected negative outcomes of community participation and low-cost housing projects of South Africa".
[177] Fung, A. (2004) *Empowered participation reinventing the urban democracy.*

implemented because the successes and failures of this implementation become the *responsibility of the participants*. He demonstrates this with two projects with public service providers: the Chicago Police Department and the Chicago Public Schools. Both offer distinct contexts for empowered participation. However, the tools and the approach work towards the same ideal of democratic project development.

The first order of business in creating an accountable autonomy within large organizations such as a public school board is to decentralize some of the decision-making. That is to allow, within certain boundaries, for subgroups or committees to assume the responsibility of their sector thus allowing for a more contextualized problem-solving approach. By redistributing the power to the people, the participants are more apt and eager to take part in the development process.

Fung describes another interesting initiative called bottom-up, top-down accountability. By setting up a school improvement planning structure, individual schools would analyze the strengths and weaknesses of operations, develop strategies and prioritize goals. Then the central offices would review the school's plan and deploy the necessary resources to realize the school's vision.

In 1970, Pateman stated that participatory democracy was taking place when people have substantial and equal opportunities to participate directly in decisions that affect them. Now, Fung speaks of empowered participation when *"decisions generated by these processes determine the actions of officials and their agencies".* This contrast the common procedure with advisory panels, public hearings and discussion groups.

To translate this in industrial design terms, participation becomes empowered when users' decisions or ideas affect the final design. The difference is that in most cases, users aren't responsible for the successes or failures of the ensuing design, they are merely the potential beneficiaries. Therefore it could be argued that participatory practices are best advised when the user depends on the design. In the context of urban planning, c*itizens who depend on these public services have strong motivations to contribute to their improvement through civic engagement*. The question becomes when do users depend on design?

The benefits of having users participate in the design process is that the company shows a form of accountability for its actions. It is recognizing the importance of its customers by listening and implementing their ideas. Likewise in Fung's case studies, not only did citizens contribute distinctive resources and expertise, they used this opportunity to hold school principles and police officers accountable when they sidestep issues, lie or act incompetently.

By coming together to address common concerns about safer neighbourhoods and more effective schools, the Chicago Public Services understood that characteristically, participants are unsure about what they ought to do to address such concerns. After setting up a space in time for participation, they used a simple five-step problem solving procedure somewhat similar to the design process.

1. Identification and prioritization
2. Proposal, justification and selection of provisional strategies
3. Implementation
4. Monitoring and evaluation
5. Reiteration

In theses Chicago reforms, the centralized offices provided templates to give content to abstract notions like deliberation, problem solving, and community engagement. In developing training materials and organizing the meetings, boundaries were created to focus deliberation on obtaining solutions. However, this brings its own set of disadvantages. When the deliberative focus is on tangible problems, it excludes some of the root causes. Some critics see that as distracting the attention of the participants from fundamental issues for the sake of trivial ones. Nonetheless, the objective is to create free spaces of deliberation where success is measured in consequent public action. Furthermore, to create an empowered deliberation, the scope of the discussions must be bounded to the competencies of the institutions that confer power and hosts the deliberation. In the example with the Chicago police, when discussions would move away from public safety and address root-causes like distribution of income and absence of economic development, the deliberation would lose power and needed to be re-centered in the scope of what the police and the community can do together. They even created an illustrated diagram that helped analyze these problems and develop solutions while keeping the debate in the predefined scope.

Can this circumscription of the debates and focus on implementation be valid guidelines in participatory design? In the conceptual phase, root causes are exactly what needs to be researched, debated and prioritized. This has been referred to in the beginning of chapter 2 as the problem space. The discussions shouldn't be focused on one theme allowing for lateral thinking as well as vertical thinking. However, in the later stages of design, action and implementation become the main concern and the earlier discussions should have dealt with the underlying problems. If the debates start large and gradually become more specific following the natural design process all along, the broader questions need to be debated first to make it possible to build upon the initial consensuses and move forward in the process.

In the history of research on democratic participation, Fung states that revisiting theory in light of empirical observation has been neglected too often. The studies undertaken in the Chicago reforms have highlighted four general elements that should be further studied.

First of all, the authors worked in non-ideal contexts for design in an attempt to realize democratic ideals. They have taken a different path by not working in favourable conditions such as wealth, marital status, or homogeneity. Yet still, they focused on deliberation as an act, as an attractive ideal in decision-making methods. "*If deliberation can be made to work despite such challenges, and some of the cases above suggest that it can, the ideal of deliberation is more robust, and more potentially attractive, than previously thought.*"

Secondly, this research tried to explore what the appropriate subjects of deliberation would be. The Chicago participants were focused on concrete, localized questions where the deliberations lead to dynamic action. Consequently, this changed the participant demographics. In other participatory efforts, Fung recollects that: "*the voices of minority, less educated, diffident, or culturally subordinate participants are often drowned out by those who are wealthy, confident, accustomed to management, or otherwise privileged".* However, defining the subjects of deliberation played a part in reversing ordinary participation biases. More women than men participated and more poor people than wealthy people participated. The author proudly states that *the subject of deliberative democracy is certainly more valuable if it can serve the least advantaged members of our society.*

Thirdly the systems already in place have a large impact on the eventual outcomes of the process. The author concluded that participatory democracy should pay more attention to institutional structure because these concepts are abstract and without form or content until their design is questioned. Also, the design of the service structures in place determines the form and implementation of the participatory activities which inherently affects the quality and integrity of the deliberation. In the case of the Chicago schools and police governance reforms, they attempted to overcome such obstacles such as the reluctance of street-level officials to engage with non-professionals, the lack of skills and knowledge, and the social conflicts. These studies clearly showed how the quality of participation depended in part on the support available in the problem-solving process. Implementing an accountable autonomy for example.

The fourth element to be considered in further participation and deliberation studies is the extent of the scope of investigation. By that, it is meant that the focus should not just include the "political" moments of decision-making with all the back-and-forth deliberation, but it should also take into account the "administrative" stages of post-decision implementation, assessment and revision. Where participative democracy is not only about the initial problem-solving activities but also in the longer maintenance of the consequences of the decisions taken. By including the Chicago participants in activities such as implementation and monitoring, they affected the success of future iterations of deliberative decision-making by being present in the full cycle of the project. One conclusion of the book is not to underestimate the power of giving power to the right people in the right circumstances. In the words of the author:

> *"Of the many objections to participatory democracy, perhaps the most common and compelling is that the ideal is irrelevant in the face of modern governance challenges. The problems of scale, technical complexity, the intricate division of labour of government, and the privatization of public life all decisively weighed against straightforward implementation (…). This book responds directly to the objection of irrelevance by counter example. (…) this book shows that public agencies can become far more responsive, fair, innovative, and effective by incorporating empowered participation and deliberation into their own governance structures."*

3. Field Research Result Tables

		Design Outputs		
		Product	PSS	Service
Design Spaces	Problem Space	58%	27%	44%
	Solution Space	19%	46%	31%
	Creative Space	24%	26%	25%

Table 5. User Generated Content in Design Outputs and Design Spaces.

		Design Outputs		
		Product	PSS	Service
Design Relationships	User-Object	28%	25%	38%
	Object-Context	7%	26%	23%
	User-Context	38%	7%	10%
	User-Object-Context	27%	42%	29%

Table 6. User Generated Content in Design Outputs and Design Relationships.

		Media Types		
		Video	Images	Blogs
Design Spaces	Problem Space	40%	34%	55%
	Solution Space	24%	39%	33%
	Creative Space	37%	27%	12%

Table 7. User Generated Content in Media Types and Design Spaces.

		Media Types		
		Video	Images	Blogs
Design Relationships	User-Object	35%	21%	35%
	Object-Context	7%	42%	7%
	User-Context	12%	16%	25%
	User-Object-Context	45%	20%	33%

Table 8. User Generated Content in Media Types and Design Relationships.

DATA COLLECTION		Media Types		
		Video (youtube)	Images (flickr)	Blogs (blogger)
Design Outputs	Product (car)	1. page 125	2. page 126	3. page 127
	PSS (car sharing)	4. page 128	5. page 129	6. page 130
	Service (taxi)	7. page 131	8. page 132	9. page 133

Table 8. Matrix of the Collected Data Tables

	A	B	C	D	E	F
1		web	Design	Design		data
2	Private Automobile videos	addr.	Spaces	Relationships	notes	piece
3			P-S-C	uc-oc-co-e		
4	Youtube					
5						
6	me driving my car	http://	p	u-o-c	first drive	just me testing out my new car, well it aint new but its new to me.
7	LAUREN DRIVING MY CAR	http://	p	u-o	kid driving	LAUREN DRIVING MY CAR AGED 7!
8	me driving my car in the snow	http://	p	o-c	conditions	this is me driving my car (1993 talon tsi) to work. this is the 2nd day of my having my license
9	Kyle first time driving my car	http://	p	u-o	proud owner	Kyle first time driving my car
10	MK driving my car	http://	p	u-o	crazyness youth	drivingg my car.
11	driving my car in racing circuit	http://	p	u-o-c	extreme use	it's funny to drive a car in closed circuit. Nissan Silvia S15 Spec-S.
12	Moving the car at work	http://	s	u-o-c	parking trick	I have to move my car every 2 hours at work, and this time I made a video.
13	Driving to work fast motion	http://	c	u-o-c	presenting drive	Morning drive to work
14	Driving to Work	http://	p	u-o-c	documenting	Here's a bit of my drive to work.
15	My Driving Experience	http://	c	u-c	stop motion house	The first Luck Ltd. Film. We are considering a My Driving Experience 2.....
16	Late for work	http://	p	u-o-c	offensive driving	lated for work, like ghostrider in car
17	My First SUV Driving Experience	http://	p	u-o	big car	This is the chaos you get when taking out the trash.
18	push your car tuesday	http://	s	u-o	creative help	so we were asked to 'push' her car with my truck...thankfully i had the video camera.
19	Pedal Pumping Driving After Work 5/6	http://	c	u-o-c	foot view	My wife drives her car hard on some country roads.
20	Driving home in Rain	http://	p	u-c	rainy conditions	Driving home from work
21	DRIVING MY VAN A NORMAL DAY AT WORK	http://	p	u-c	driving on the right	Today i decided i would film 4 minuets of me driving on a fairly pleasant road and it was a good day
22	Me walking to my car from work	http://	p	u-c	parking walk	Me walking to my car from work
23	I love my car music video (student work in progress)	http://	c	u-c	toy car mobility	Stills music video for Belle & Sebastian's I Love My Car. Work in progress!
24	I Love My Car	http://	c	u-o	object adoration	Seat Leon 1.6 Stella
25	my car ride to work	http://	c	o-c	stop motion	307 pictures, nick drake - "road"
26	If Your Car Horn Could Speak- Buckwild and Ridiculous	http://	c	u-o-c	horn idea	Sometimes you get what you ask for...and its just not how you pictured it...
27	me driving	http://	p	u-o-c	learning with mom	it's kind of staticky or whatever. but we were leaving my papa's house.
28	Driving a Crappy car, and my potentially gay manager up	http://	p	u-o	vlogging from car	I made this video while driving to work, since the piece of shit car I'm driving had no radio...I want m
29	jesse driving me home	http://	p	u-o	lifting someone	jesse and i driving back home from the library
30	Should you smoke in your car?	http://	p	u-o-c	driving while smokir	by Escada
31	Driving Home	http://	p	u-o-c	conversations	Never ever squish three girls in the front seat of a car; it gets crazy.
32	driving home from town drunk	http://	p	u-c	designated driver	me and shaun driving home. im drunk. the vid gets better at end
33	A kid, a car, and an idea	http://	s	u-o	new energy source	It features our yellow Beetle that runs on vegetable oil, and the larger possibilities.
34	Driving home with Jenny Lewis..	http://	p	u-c	open freeway	I took this video while driving home from LA one early morning back to Bakersfield
35	Love Of Driving	http://	p	u-c	the use is passion	Driving, for most it's a way of getting around. For others it's a living. For an even smaller few, it's a p
36	i love driving here	http://	p	u-c	enjoying scenery	route onem the only real street here in big sur, other than the hidden ones that go to the hills
37	The Car Experience	http://	c	u-o-c	testing heat	Easton, Chris, and Andrew spend 51 minutes in a car with the windows rolled up and the heater on ful
38	I hate fucking driving	http://	p	u-o	others on road	mean streets of Woodbridge
39	Driving Skills	http://	c	u-o	driving moves	Charlie, you are going to hate me for this! But it is rather funny!
40	I just want to get home! LOL	http://	p	u-c	traffic woes	I hate L.A. traffic. After I shot this video clip it got 100% worse!
41	Me driving through my beautiful city..	http://	p	u-c	owner of car and cit	quite emo..
42	Car Revolutionary Idea	http://	c	u-o-c	commercial fun	http://www.youtube.com/watch?v=YoqUcBr5bH8
43	Driving HOME	http://	p	u-o-c	multi-task	Singing on the way home from the city. HELLA traffic.. OCTOBER7
44	Humvee Driving Through Traffic in Iraq.	http://	p	o-c	intimidation	Humvee driving through traffic in Iraq
45	Driving against Traffic in India	http://	p	u-c	no rules	Here's my normal commute back to my residence in India , in India , the traffic is anything goes!
46	The Car That Parks Itself	http://	s	u-o	new tech	It sounds like the answer to millions of drivers' prayers: a car that parks itself.
47	Hell Driving in Cairo	http://	p	u-c	no lanes	The most crazy taxi drive race you can imagine in your life. No video game can compare to it. Absolut
48	Car Wash Experience	http://	s	u-o-c	enjoyable service	I Put some music while my car it´s been washed.
49	A Day In The Life...	http://	p	u-c	Finding car	A video of my daily routine, complete with disappointing sleep habits, long searches for my car in the
50	SenseCam Video Diary	http://	c	u-o-c	driving boring	The video is a montage of the 1000's of stills taken during that timeframe - I've edited out the borin
51	Routines	http://	p	u-c	could be a taxi	my work day routine involves a bit of driving. here is a captivating glimpse into that world.
52	Driving With Elias - A Lesson In Sophistication	http://	p	u-c	chaperon	It was his dad's car, so he came with, which is understandable.
53	Driving in Vancouver	http://	p	u-c	winter more time	A little snow and everyone freaks out. A routine 20 minute commute home turned into three hours...
54	A Day In the Life... Episode 1	http://	c	u-c	car video narcism	Dante Posh does her normal routine.. This episode - driving to the coffeeshop...
55	Driving to work on a Monday	http://	p	u-c	kids at school	After dropping my daughter off at school, I drive to work and complain about other parents at the sch
56	Drive to work	http://	p	u-c	before and after	Driving to work, what?
57	Driving to work, meeting a furry, driving home	http://	p	u-c	traffic thoughts	Boston traffic really sucks. Expect more of this sort of thing.
58	Blogging in the car	http://	s	u-o-c	blogging not bored	Seems to be a popular spot to blog these days so I decided to test it out...

	A	B	C	D	E	F
1		web	Design	Design		data
2	Private Automobile images	addr.	Spaces	Relationships	notes	piece
3			P-S-C	uc-oc-co-e		
4	Flickr.com					
5						
6	I've been driving in my car... (Day 321/365)	http://	p	u-o-c	responsible for trou	But at least I got a pretty stamp on my old documents to prove to the traffic police that am not a terrible person
7	? ? The Beatles - Drive My Car	http://	p	u-o-c	music ambiance	Yes I'm gonna be a star, Yes I'm gonna be a star, Baby you can drive my car, And maybe I'll love you
8	My son's car	http://	p	u-o	dependant	He was looking at some turkeys off the side of the road, then he ran off the other side.
9	You let me change lanes while I was driving in my car	http://	p	u-c	let me act	All I wanna do is to thank you, Even though I dont know who you are, You let me change lanes, While I was driving in my car
10	Driving in my car, rocking out, sunroof open. Life is good.	http://	p	u-o-c	life is good	Photographed using my BlackJack cell phone.
11	Me in My Car	http://	p	u-c	not happy	This is a picture of me. In my car. Driving. I was at a stoplight. Waiting to go. I look kind of pissed off, but I really wasn't.
12	Leo my car driving instructor	http://	p	u-o	learn to drive	This is Leo, my instructor. Usually I'm not that talkative during my car driving lessons.
13	do you like driving?	http://	p	u-o	concentration	My brother Emi driving his car.
14	Out of My Mind and My Car	http://	c	o-c	new POV.	Taken from outside of my car while driving down the frontage road near my house
15	Today, while driving my car I realized maybe, just maybe,	http://	p	u-c	car=hibernate	Monotony, boredom Millions live like this (or die like this) without knowing it. They work in offices. They drive a car.
16	drive my car	http://	c	o-c	driver for non-car	I got no car and it's breaking my heart, But I've found a driver and that's a start
17	I Still Drive My First Car	http://	p	u-o	eternally yours	We share a love-hate relationsihip. I love driving it, and it hates me for the way I abuse it.
18	Driving My Car	http://	c	u-o	who took this?	mas o segredo é que segurei a câmera "com os dentes"
19	I miss driving my car..	http://	p	u-o-c	fun driving turbo	the work I was going to put into to it has fallen to the wayside...and it remains in the driveway...hope to have it running by mid July
20	car	http://	p	u-o-c	screaming	so you turn into scary road rage man in the car huh? ;-)
21	My test drive car	http://	p	u-c	test drive	But it was a bit disconcerting looking through the rear view mirror and not seeing "the rest of the car".
22	Being driven to Colchester in my own car	http://	c	u-o-c	car sharing	today I let my girlfriend drive my car there..Lord have mercy on my soul..lol..:O)
23	drive my car	http://	c	u-o-c	multiple attentions	Adri esta hecho con photoshop , un poco de transparencia y mucha paciencia.
24	Driving to SpringFest	http://	s	u-o	foot rest	not in town when I have to start and stop before people start have a heart attach.
25	Trying Not to Crash an Expensive Car	http://	p	u-o	stress	They got used in the article, but I was a bit worried about explaining what we were doing if we got pulled over by the police...
26	Cars in a Blizzard	http://	p	o-c	winter conditions	Don't these people have anything better to do besides drive in the snow?
27	Miss Marie Driving A Car	http://	p	u-c	no jugements	I had to stop & get ice on my way to Michelle's. Everyone at the gas station told me I looked awesome!
28	Rainy Drive Home	http://	c	u-o-c	your space	I love the rain. I love storms. They make being in the car - and the drive home - a peaceful, meditative place to be.
29	a man and his (wife's) car	http://	p	u-o	gender ownership	he came over. "it's my wife's car, actually. she said the best thing about it is the taillights."
30	Car of Driving +5	http://	s	u-o	sticker = message	Sadly, I didn't get to go to Gen Con this year, but some of my friends did, and one of them has upgraded his car.
31	Car	http://	c	u-o	multiple tasks	I took my drivinglicense for car. So now I'm officially free, I can go where ever I want to go, uhm drive.
32	Drive to work	http://	p	u-c	early	Managed to capture the sunrise on my drive to work as we paused at a red light.
33	7 Days: 3 Driving to work	http://	p	u-c	doing everything	Is there a law against driving and snapping pictures of ones self? There should be!
34	The Drive to Work	http://	s	u-c	à côtés	My favorite cup of MMM and listening to some music on my iPod.
35	The Best Drive to Work	http://	s	u-o-c	good view	I miss spending quiet mornings in the Gorge away from stop lights, traffic, cubicles, meetings, fast food lunches
36	My drive to work this morning.	http://	c	u-o-c	scenario	1. Start., 2. Snow, 3. More snow, 4. Still more snow, 5. Boring snow, 6. Arrived, finally!
37	Typical Drive to work	http://	c	u-o-c	experiment	I love GPS. I'm going to start using it to track my runs in hopes that I'll be motivated to keep doing it. This was just a test.
38	Driving back to work with the wind in my hair. Love that su	http://	s	u-o-c	outside = happy	Photographed using my RAZR cell phone.
39	Driving to Work Sucks	http://	p	u-o-c	simple unhappy	Yup. Sorry, man. From cyclist.
40	just me driving to work	http://	c	u-c	pov from under	focusing on the road like typical LA drivers... ha!
41	The Journey to work	http://	p	u-c	journey map	From Phillips Ranch to El Segundo, California. 45 miles!
42	Police Escorts make commuting much easier	http://	s	o-c	escorts	But this did make my drive to work easier although it was impossible to exceed the posted speed limit.
43	Drive to work this morning.... a bit frosty!	http://	p	u-o	icy windshield	Cleared an area so I could see well enough. By the time I get to the main road the view will be clear. No worries!
44	it's official. . . I've been in my car WWAAYY too long!!	http://	c	u-c	know traffic	Normally I would just stay after and catch up with whatever I'm behind on, but today I was hungry and cranky.
45	i wait i wait i wait	http://	p	u-c	wating in lot	watching the traffic go bywhile waiting in my car in the walgreen's parking lot
46	traffic kaleidoscope.....	http://	c	o-c	reflection	all those cars are backed up waiting for the traffic light to change on my last turn going home a few days ago, that was bad
47	my car in the reflection of another car's mirror	http://	s	o-c	kid's safety mirror	I was sitting in traffic and noticed that the car in front of me had a cool little convex mirror next to its license plate.
48	I hate my car	http://	p	u-o	service engin soon	It broke. Again. Less than 100 miles since it was last in the shop.
49	My car	http://	c	u-o	sticker expression	My goal is to totaly cover my car with bumper stickers. My mom says I have something to offend everyone.
50	I hate my car seat	http://	c	u-o	kid unhappy	Seriously, I hate it
51	i love my car i hate my car	http://	c	u-o	love - hate	crushed cars
52	194. Car Confessions.	http://	c	u-o	car confessional	I do not like driving around, without a purpose. I can't just "go for a ride." I need a destination. It just seems pointless to me.
53	FUH2 Red Hummer	http://	c	u-o	viral social activity	
54	Bye, Bye Baby	http://	p	o-c	Inactive car	the car had been relatively untouched for two years and then as soon as I was away, they pounced.
55	Broken	http://	c	u-o-c	mini toys	I've HAD it with you! We're finished ... we're through!
56	Traveling Billboard	http://	s	u-c	car add space	Thought i would show you my traveling billboard. I am pretty sure if you see me coming now you will remember me.
57						
58						

	A	B	C	D	E	F
1		web	Design	Design		data
2	Private Automobile blogs	addr.	Spaces	Relationships	notes	piece
3			P-S-C	uc-oc-co-e		
4	Blogs					
5						
6	I'm considering selling my eggs...	http://	p	u-o-c	sell eggs for tickets	I'm so sick of not having a car...!This will not solve my transportation problem
7	Deploying?	http://	p	u-o-c	inspection consequ	Phil took the honors of driving my car to work today and getting that done for me!
8	Workers' compensation or personal injury	http://	p	u-o-c	compensation	I was driving my car to work and I was struck by a car on the rear end side.
9	Deanna: Do this in Remembrance of Me	http://	s	u-o-c	Happier	My Lenten journey of not driving my car to work ended in the same way it started, a commute of near epic proportions.
10	Stay Away From People Who Say You Can't Do Something	http://	s	u-o-c	thinking in car	Whilst driving my car to work. I was listening to The Magic of Thinking Big by David Schwartz.
11	Cranky Day	http://	s	u-c	independence	I'm even driving my car to work tomorrow instead of catching the train! It's a once-a-year event and should be pretty good.
12	Biking to Work	http://	s	u-o	attitude change	I'm done driving to work. From now on it's public transport, biking, or working from home.
13	Notes from the Weekend	http://	p	u-o	maintenance	Two things stand between me driving my car to work: the coolant temperature sensor and an oil change.
14	I forgot to knock on wood - death of MFJ's pimp ride	http://	p	u-o	death of car	I'm driving my car to work when I start hearing some clunking. The car was overdue for an oil change
15	Why I Don't Care About Global Warming	http://	s	u-c	Reason to drive	I need to drive because I have to go out to construction sites all around
16	dont read this	http://	p	u-c	Face Hide	when I drive my car or ride my bike, I feel uncomfortable knowing that people can see my face
17	journey begins	http://	s	u-c	Price of car	I often think I would be better off not having a car and just travel by bus, train or taxi.
18	Anyone sway to the left!?	http://	s	u-o	self fix	When I drive my car in my town, and I let go of the steering wheel, the car travels mostly straight, except when I hit any potholes.
19	Noisy windows	http://	p	u-o	windows sound	Hi all When i drive my car, i hear a noisy air coming from the windows :(i
20	you know how it goes.	http://	p	u-c	checking girl out	when i drive my car, especially on the interstate, a lot of guys will stare at me and if i speed up they speed up
21	WOOHOO!	http://	p	u-c	concentrate no view	When I drive my car I'm completely focused on the road and I'm trying to avoid every possible idiot
22	A change must be had.	http://	p	u-c	ownership	But since it's my car, I do have leverage over how it should be driven, right?
23	creepy & disgusting	http://	p	u-o-c	smoking lender	my Dad (when driving my car when I was gone) put his CIGARETTE BUTT in the can. (I hate smoking.)
24	KYB Excel-G shocks & RS*R sport springs	http://	s	u-o	improvements	It's like driving a whole different car! Another happy purchase
25	Triple head with 3 x 24" LCD's vs A big 42" HDTV?	http://	p	u-o	double view	An observation when driving my car made is, I cannot look at my gauges and see the road at the same time.
26	Hrm	http://	p	u-o	move in car	1) I am very "active" when driving my car. I belt out song lyrics at the top of my lungs and I "dance".
27	Dec. 19th, 2007	http://	p	u-c	just walk	I hate my car because I need it to go some places when I wish I could just walk (it's irrational to direct that anger toward my car)
28	My pointless ramblings	http://	c	u-o	Love hate	I love my car because... it's big, I hate my car because... It's big
29	Random thoughts	http://	p	u-o	Unhappy to own	I hate my car, it doesn't give me joy. It never really did, to be honest. It is ugly, loud, and smelly on the inside and out.
30	I hate my car today!	http://	p	u-o	Hate today	Grrrrrrrrr.... car problems! Hopefully can get it fixed soon.
31	I hate my car I hate my car I hate my car I hate my car	http://	p	u-o	Fixing costs	We talked them down on price for the brakes, and decided not to repair the wiper switch. So the wipers work only on intermittent.
32	TEN THINGS I LOVE.	http://	s	u-o-c	liberty	I love my car because i can go to anywhere i want .
33	The fast n the furious pumpkin ride	http://	s	u-o	like movie	I love my car because its Orange and really fast. Just like the cars on the fast and the furious. Oh yeah....You already now
34	Oh How I Love My Car	http://	s	u-c	reflect on ownersh	I literally cannot imagine my life without my car. Can you imagine your life without a car?
35	Mehhhh	http://	s	u-o	working on MY car	Working on her myself makes her feel even more mine. It's a sense of accomplishment
36	Troub-bb-bbbb-bled.	http://	s	u-o	attachment	I love my car because --I've cried it in, loved in it, laughed in it...it's really seen everything that is me.
37	Of Ecofinances	http://	p	u-o	emotions to $	I feel like my car is a huge financial drain. It's getting older, the air conditioning needs fixed again after $1500 in repairs
38	ANOTHER LAYS A DOZEN WHITE ROSES ON A GRAVE	http://	c	u-o-c	bedroom	Sometimes I feel like my car is my bedroom. Sometimes I just want to stay in it and never leave.
39	Family in North Carolina	http://	c	u-o	aliends?	I feel like my car has been taken over by ungrateful aliens. Everyone is completely rude
40	Level 2	http://	p	u-o	overdrive	HAHA I feel like my car has a new ability on it's evolutionary peak.His ability is OVERDRIVE
41	Thanks fucker	http://	p	u-o	Car = person	I feel like my car was raped. And I feel a bit scared as someone has a personal issue with me. What the hell did I do?
42	boomin system	http://	c	u-o	car is a disco	The backseat of my car is like a disco show You would think I was a good friend of Al Capone Crazy air freshener,
43	Shiz u so missed out on some sweet stuff	http://	c	u-o	car is a backbone	that now makes my car undriveable until i fix it. Sucks because my car is like my backbone. Oh well i figure some things out.
44	Stop Spoiling Things For Me	http://	p	u-o	mentality change	I honestly love this car to death and I finally understand the whole "my car is like my baby" mentality.
45	sailing_through	http://	s	u-o	freedom	FUCK! I'm going to miss driving SO FUCKING MUCH! My car represents freedom, I can leave my arguing family whenever I want.
46	sailing_through	http://	s	u-o	one with car	Today I drove my car barefoot for the first time and the machine became a part of me. I could feel everything.
47	4th Day and Going	http://	p	u-c	fast lanes	Starting to feel really tired with the daily commute to and from work. Then of course there is the jam.
48	Let's do a Quick Life Update	http://	p	u-o	repair	I hate my car, those days are when something VERY routine stops working and it turns out to be not so routine to get fixed.
49	guys are good for one thing.	http://	p	u-o	wash	why do i need to wash my car when i can bring it across the street to be washed. i made a smart decision by washing it myself.
50	I hate my car	http://	p	u-o-c	dying story	Well, I think I need to start looking at buying a new car. I dont want to be scared to drive around anymore.
51	Life Sucks, Then You Die	http://	c	u-o-c	car analogy	Your human emotions serve as your feedback mechanism on your life's journey. They're like the dashboard display on your car.
52	I hate my car	http://	p	u-o-c	dying and dealer	Never buy a car and finance it through a dealership. Please learn from my stupid mistakes, someone has to.
53	The Most Retarded Conversation Ever	http://	p	u-o	no attachment	I've worked out why I hate my car so much. It's not that it's not fast, or exciting, but that it has no... Soul.
54	I hate my car!!!	http://	p	u-o	hate one not other	Words cannot describe how much I hate my car. It's at the shop now.
55	Yearn Therapy	http://	p	u-o	therapy for car	Also, I hate my car. It's been a money pit. This makes me VERY ANGRY. So. I decided to treat myself to some sock yarn
56	Buyers Remorse	http://	s	o-c	Timing	The moral? Wait at least 6 months after having your first baby to buy a car.
57						
58						

	A	B	C	D	E	F
1		web	Design	Design		data
2	Car sharing videos	addr.	Spaces	Relationships	notes	piece
3			P-S-C	uc-oc-co-e		
4	youtube.com					
5						
6	A Community Car Share Hits the Road	http://	s	u-o-c	conference talks	Established car-sharing organizations mentored her, individuals offered low-interest private loans, a state grant enabled them to purchase a hybrid
7	Car Share Leeds	http://	p	u-o-c	my experience	Monkey Boy's Car Sharing Blog continues
8	EILEO Car Sharing Technology demonstration	http://	s	u-o-c	system demo	User demonstration of EILEO system : .org, sms, smartcard
9	Convadis On Board Car Sharing System Demo	http://	s	u-o-c	system demo pov	Convadis On Board Car Sharing System Demo.
10	car sharing	http://	c	u-o-c	sketched scenario	a short movie on car sharing by -asadul islam
11	Car Share Leeds Continues...	http://	p	u-c	people's stories	The 3rd instalment of Monkey Boy's Car Sharing adventures.
12	Car Sharing Question - Connie Majka and Mary Jo Pauxtis	http://	p	u-c	parking city code	car-sharing services such as PhillyCarShare are considered commercial uses and, as such, are not permitted in residential districts.
13	Extreme Car Share	http://	s	u-o-c	lamborghini	Take a Monthly Spin on Some Classy Wheels - with out owning?
14	Philly Car Share Parade	http://	c	u-c	parade!	A parade celebrating philly car share.
15	Victoria Car Share Co-op	http://	c	u-o-c	newscast style	Assignment: 2 minutes, 2 interviews
16	Divvy Car Share Commercial	http://	c	u-o-c	business scenario	Commercial we made one day outta the blue for a school business plan project.
17	Il car sharing a Roma	http://	s	u-o-c	commercial POV	Il car sharing a Roma, servizio a cura della redazione di Ruoteperaria,
18	Car Sharing	http://	s	u-o-c	commercial functior	Una interessante descrizione di come funziona il car sharing nelle grandi città
19	Karzoo.eu	http://	s	u-o-c	scenario promote	Car Sharing initiative for the Luxembourg Region
20	College: Car Share	http://	c	u-c	Protest	We Protested Again Those That Dont Car Share Back In 2006. What Difference We Made Will Have Been Minimal At Best,
21	Speccio	http://	c	u-o-c	lego scenario	Car sharing service by Prospiracy, a design collective in Amsterdam
22	Flexi-Flix Winner	http://	c	o-c	made with cell	make a mini-movie on their mobile phone or camera. The winner Matt McCullough sent us this brilliant entry.
23	Flexcar Commercial (school project)	http://	c	u-o-c	intrigue speed	A commercial we had to do for the Flexcar car sharing company in Economy Class.
24	SwissBike Meets Zipcar - Cycle & Drive.	http://	c	u-o-c	mobility combo	Great combo for urbanites. Wheels When You Want Them.
25	Cargh Pool	http://	c	u-o-c	personalities	A short comedy film. Do your part for the environment!
26	Zip around UNM	http://	s	u-c	mini-local	Zipcar offers a car-sharing service to get around the University of New Mexico
27	Mark Leno - Environment	http://	p	u-c	political agenda	San Francisco Assemblyman Mark Leno renewable solar energy, car sharing and global warming
28	Braithwaite Starts Up Zipcar	http://	p	u-c	maintenance	Philadelphians Weigh in on Car Sharing
29	Zipcar 7th Birthday Party!	http://	c	u-c	party	Zipcar turned 7-years-old this year and to celebrate Zipcar Boston threw a big ole party.
30	Zipcar is For Everyone	http://	c	u-c	zipcar day	Having fun one day the NY Zipcar marketing team put together this video.
31	DEMO: DartCar	http://	s	u-o-c	internet system	DartCar is the peer-to-peer carsharing system that helps you coordinate with friends.
32	3 Easy Steps to use Zipcars	http://	s	u-o-c	how to	The three basic steps to renting a zipcar.
33	New Zealand car rentals	http://	c	o-c	search cars	Based on my experience with New Zealand rental car companies, I have decided to conduct an experiment to see if I can do with of the following:
34	My Carshare Ad	http://	s	u-o-c	document easyness	I love carshare.
35	Streetcar - presentation	http://	s	u-o-c	official report	Carsharing
36	Mike and Sean	http://	c	u-c	kids	Car sharing
37	Environmental Video Series #1	http://	s	u-o-c	full scenario expla	Car Sharing is part of the future of automobile transportation...
38	Brooklyn Cyclones and Zipcar	http://	s	u-o-c	marketing event	Looking back at a successful promotion with the Brooklyn Cyclones.
39	Foggy Evening with Zipcar	http://	c	u-o-c	fun experience	tooling around san francisco in a zipcar
40	Mom Loves Zipcar	http://	p	u-o	great love showing	zippity do da day!
41	A zipcar story	http://	s	u-o-c	airport ride told	How zipcar made it convenient to get my dad to the airport.
42	Zipcar Test	http://	s	u-o-c	first use testing	Kevin, Chris and Meghann test a Zipcar.
43	Chicago I-Go Car Sharing Program	http://	s	u-o-c	reporting on user	Chicago's I-Go Car Sharing program is encouraging drivers to think differently about how travel.
44	et si la barrière ne se relève pas ?	http://	p	u-o	user manuel	Pas de panique, tout est sous contrôle .... vous avez le contrôle!
45	Car sharing - spot gruppo THETA master MUTEGS 05 06	http://	p	u-o-c	old bad, new good	Car sharing rocks! Tre elementi essenziali: ritmo, una signora leggermente irritata ed il gigante buono del Sannio.
46	The Facts	http://	c	u-c	marketing idea	Alex gives us a zipcar fact
47	City Car Share - Parking	http://	s	u-o-c	commercial like infc	I was producer, but I also did directing, filming, editing, and acting.
48	Beautiful Philly Townhouse for Sale	http://	c	o-c	proximity factor	Brand new renovated luxury residence with 3 bedrooms and 2 1/2 baths. Very close to a Philly Car Share location if you do not have a car.
49	Zipcar Chicago	http://	c	u-o-c	promotional	Zipcar scoots through Chicago landmarks and through "The Loop".
50	City CarShare Jingle by Ariana Hernandez	http://	c	u-o-c	jingle by girl	Another happy member! Easy to Use, Easy on your Wallet, Easy on the Environment.
51	Missoula In Motion Best Practices Winner - MUD	http://	s	u-o	truck share	The Missoula Urban Demonstration Project was Missoula In Motion's 2007 Transportation Best Practices Winner for their "Truck Share" program.
52	Ms Monique Conheady, Sustainable Cities Round Table	http://	p	u-c	conference	Presenting about "Flexicar" titled, "If you live in a city, you don't need to own a car",
53	Flexicar Corporate Video	http://	s	u-o-c	commercial all info	An example of or fine quality corporate Videos. Using humour and creative style to convey your message
54	Zipcar Triathlon	http://	s	u-o-c	story of use for spo	Three zipcar members take a zipcar down to the San Jose International Triathlon.
55	Zipcar short	http://	c	u-o-c	story of use for love	Zipcar Commercial
56	ZipCar'ing South Ontario	http://	p	u-c	tourism	would nt let me type what i wanted so sod it
57						
58						

	A	B	C	D	E	F
1		web	Design	Design		data
2	Car sharing images	addr.	Spaces	Relationships	notes	piece
3			P-S-C	uc-oc-co-e		
4	Flickr.com					
5						
6	Philly Car Share and Kylie	http://	s	u-o-c	ads	Philly Car Share Lot with H & M Billboard of Kylie Minogue beachware
7	Car Share	http://	p	o-c	lanes not policed	I have seen countless number of solo drivers using this lane to beat the jams. It is not properly policed so it is now abused.
8	Car sharing rumble: Zipcar vs. City Car Share	http://	p	o-c	competition	I knew that prices were lower in SF due to competition, I'd not realized the car sharing rivals were sharing parking space.
9	Car sharing 2	http://	p	o-c	parking for place	More cars than room. People keep their cars parked not to loose the place.
10	Shared car	http://	s	o-c	waterside+logo	My first trip driving a shared car -Toyota Prius hybrid, Fort Mason, San Francisco
11	Car Sharing in Köln	http://	p	u-c	signagne	Sign for a Car share in Cologne
12	Car sharing 4	http://	p	o-c	Sequence	After entering my PIN I open the right door and get the key. I have to book the car before via internet or phone.
13	Philly Car Share Dude	http://	p	u-c	Mascotte	They are green because they help the environment, but they are also a little bit creepy!
14	Car sharing in Switzerland	http://	s	o-c	train combo	It is mostly used to commute from or to the train station. This scheme saves ressources (and energy).
15	Shared car's dashboard	http://	p	o-c	No sense of sharing	Toyota Prius hybrid from CityCarShare
16	Austin Car Share parking spot	http://	s	o-c	signage	austincarshare.org
17	half share	http://	c	o-c	illusion?	Anyone want to go half shares in a car? My half has the steering wheel:)
18	Flexcar, ZipCar	http://	s	o-c	shared parking	Shared transports. Over by GW, on Penn Ave and 21st.
19	FLEXCAR, a Car Sharing Service	http://	s	o-c	parking sign	Flexcar covers insurance, gasoline, maintenance, parking in their spots, repairs unlimited miles.
20	Park - Zipcar	http://	c	u-c	rent parking ad	parkingday.org, zipcar.com car sharing
21	Park - Zipcar	http://	s	o-c	tow sign	parkingday.org, zipcar.com car sharing
22	carshare snap	http://	c	u-c	center of activity	this should illustrate the 'target' user base of philly car share.
23	Ride to the Capitol 2008 - prime bike/car parking!	http://	s	u-c	easy acces	Zipcar @ Georgia Rides to the Capitol!
24	flexcar_ninga	http://	s	o-c	logo	flexcar - the sharing car program in portland oregon
25	shared car	http://	s	o-c	parking spot sign	scissors cutting car*
26	ride_with_hitler	http://	c	u-o-c	funny approach	Hitler has only got one car, the other will never go real far,
27	Toyota Priuses or rather, "Pri-i"	http://	s	o-c	hybrids match ideol	Ever started a car by hitting the Power button? Is it on? I can't hear or feel it, hmm? Gotta love hybrids!
28	GoGet got hacked	http://	p	o-c	web security	The car-share service which uses the web for it's booking system got hacked!
29	Welcome to HourCar!	http://	s	o-c	mini-flot	This Prius is one of 15 hybrid Toyotas owned and operated by the Neighborhood Energy Coalition
30	Collectivo	http://	s	o-c	mix with taxi	These are used as a sort of shared taxi service in Mexico City. I think they are actually part of a roadblock/protest in this picture
31	City CarShare pod at UCSF Mission Center Building	http://	p	o-c	motorcycle	1855 Folsom Street, San Francisco, California, USA. Also shown: motorcycle parking.
32	woo! i have my own Smart!	http://	p	u-o	happy semi-owner	well, sorta... CCS' newest microcar went to the pod across from my house!
33	UHaul U Car share	http://	s	o-c	trailor-share	uhaul car share
34	Car Sharing is Out of this World	http://	c	u-c	robot messager	Thank goodness it wasn't terribly hot out... geez!
35	Camel and cars share street in Cairo, Egypt	http://	c	o-c	Camel share!	Photo by Crystal Davis, World Resources Institute, 2007
36	City Car Share Drivers Don't Know How to Park	http://	p	o-c	missparked	In some cities they tow the car if tis not parked correctly or if any part of it is hanging over the line.
37	phily car share	http://	c	u-o-c	green drivers	What a great street scene! Not the everyday seeing green men.
38	the best way to sell car share	http://	c	u-c	other mascot	is with polar bears
39	Singapore Honda hybrid car sharing	http://	s	o-c	singapore honda	Uploaded from Nokia e61i
40	enyjoing our first city car share trip	http://	s	u-o-c	breads goodness	we used it to go to target and to donate all of the stuff that doesn't fit into our apartment. city carshare rocks.
41	Satan: good for car-sharing.	http://	c	u-c	slogan	Never give the devil a ride, he will always want to drive. I do like a good church advert.
42	Car sharing in action	http://	c	u-o-c	panorama	cool point of view*
43	take a pet with goget	http://	s	o-c	pets	instructions manual style board*
44	Anuncio de Car Sharing en Autobuses en Barcelona	http://	s	o-c	ad on bus	combo*
45	Shared SUV	http://	s	o-c	paradox	I've read that some CityCarShare "pods" have vehicles with bike racks, but this'll do.
46	philly car share	http://	s	o-c	parking markings	pardox between park here or not*
47	thank you philly car share for letting us drive a prius	http://	s	o-c	gratitude	prius distinctive because of computer display
48	Snow et Communauto	http://	p	u-o-c	adaptiveness	no rack
49	What's in your wallet?	http://	s	u-c	member card	Aeroplan, Airmiles, Bell calling card, Telus calling card, Pharmaprix points card, video rental card, Communauto card ...
50	COCKTAIL TRANSPORT 2007 (05)	http://	c	u-o	pose	Communauto
51	my own mini!	http://	s	u-c	no plate& "1/2own"	woohoo! the 15th and dolores pod now has a mini!!
52	YAY CITY CAR SHARE!	http://	p	u-c	shopping	the car will primarily be used for my large furniture shopping and big grocery shopping.
53	probably the best feature ever	http://	s	u-c	introducing to new	i heart citycarshare for introducing me to the awesomeness of the toyota prius.
54	Rockstar parking at Brainwash	http://	s	u-c	great parking	Taken at 11:20 AM on June 04, 2006; cameraphone upload by ShoZu
55	WTF?! I haven't even finished the registration process	http://	p	u-o	service cust. Comm	not only did I not take a car without permission, but I haven't even finished my registration process with them.
56	city carshare wedding	http://	c	u-o-c	wedding	wo of our members got married and used a CCS beetle as their limo. they gave us permission to use this photo. it's cute ;)
57						
58						

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1		web	Design	Design		data
2	Car sharing blogs	addr.	Spaces	Relationships	notes	piece
3			P-S-C	uc-oc-co-e		
4	Blogs					
5						
6	Cow Sharing	http://c		u-o-c	cows	Cow sharing, although different in many ways from car sharing, has some of the same principles.
7	Paris Mayor promises electric car sharing. Gets re-elected.	http://p		o-c	politics	Trouble was, he had an election to win before he could really claim a mandate to make it happen.
8	Car Sharing in Melbourne	http://s		u-o-c	business models	Recently I noticed that some parking spots in the city area are reserved for car sharing. There seems to be two car sharing companies operating.
9	Community Sharing Vehicle – a proposal for study and de	http://s		u-o-c	still your car	Community Shared Vehicle is a proposal for study and development based on Prout a proposed model of economy
10	My neighbor and I are going to try to share a pick-up.	http://s		u-o-c	eco-neighbours	Anyway I hope this situation helps my neighbor too. Plus we have less of a carbon print. Win win for everyone!
11	Zipcar in the future	http://c		u-o	slogan	If there is a phrase that describes the Zipcar car-sharing service — — it would be some mix driving pleasure and "Own Nothing, Have Everything"
12	CAR FREE AND CAREFREE, EVEN IN CINCINNATI	http://s		o-c	combo rent-share	Companies like ZipCar operating as nearby as Columbus combine car rental with car-sharing to give people even more flexibility.
13	Citycarshare.org - Non-Profit Car Share	http://s		o-c	Non-profit	This type of service and their non-profit status makes them particularly attractive.
14	Car Sharing in Montpelier? Putting it out there.	http://p		u-c	psycho-social barrie	Maybe people aren't ready to give up the idea that they can drive wherever they want whenever they want.
15	Revving up: Zipcar's car sharing rivals	http://c		o-c	chart making	Below, a chart comparing the current offerings from Hertz, U-Haul, and Zipcar.
16	Shiny Red Bikes are for Sharing!	http://p		u-o-c	return to same are	where with car sharing you typically rent a car from a particular location and have to return it to that exact location
17	A Joy Ride for Car Poolers	http://c		u-c	eat together	Part-breakfast means the second round of breakfast they relish after the one at home.
18	Why car share?	http://s		o-c	insurances	both cars are less likely to be involved in an accident if they are being driven less. Thus, car insurance companies appreciate this lower risk
19	Car-Sharing for Urbanites	http://s		o-c	Automation	Its vehicles are equipped with a wireless device that sends such information as the car's fuel level and the number of miles driven.
20	Car Sharing	http://p		u-o-c	Questions	My sis had mentioned a private car share between neighbors That would be a lot of trips to the gas station if everyone had to continually top it off.
21	Green Guide to Milan	http://s		u-c	tourism	If you're going to be traveling in and out of Milan often, you should definitely consider utilizing their CarSharing program
22	Before the weekend	http://s		u-c	transition	we should have a car when/if we need it and not have to pay too much to own a car for awhile.
23	Cars, cars, and more cars	http://p		u-o-c	no solution 4 mobil	The idealistic side of me wants to convince my parents that they don't need another car at all, but realistically I know that isn't true.
24	Flexcar: Public Car Sharing in San Francisco in 2005	http://s		u-o	good feel and HIW	I am impressed at the way Flexcar functions like a choreographed dance.
25	Transport in Northumberland	http://s		u-c	political will	Develop and use car sharing, travel plans etc, especially for trading estates and other employment centres.
26	The environmental impact of PhillyCarShare and of CarSh	http://c		u-o-c	calculations	how PhillyCarShare members decided to change their mode of transportation.
27	Sydney launches trial car-share parking	http://s		o-c	urban mobility	Improving urban mobility requires new thinking and innovative solutions at every level of government, he said.
28	The Malay Marriage Mess	http://s		u-c	not economics	despite commanding the salaries that they have, are still sticking to public transport or using car sharing services
29	Using car sharing programs like Zipcar, Flexcars	http://s		u-c	referal is viral	with the link here, you can signup through my referral and get $50 free driving credit.
30	Picnics, slides and slings	http://s		u-c	Picnic long activity	by packing a pinic for the four of us on Friday night, renting one of our local communist cars (love, love car sharing),
31	All the car I'll ever need!	http://s		u-o-c	Full $ Feedback	Each time I drive I get to see the whole-system cost of my trip; my hourly and per-kilometer charge includes gas, insurance, usage, depreciation…
32	Goddamnit.	http://p		u-o-c	inavailable	I knew I would grow to hate car-sharing with every fiber of my existence. Turns out the brother needs it today so I can't make it to Lindsey's party.
33	Saving Zipcar	http://p		u-o-c	customer service	I loved Flexcar. My experience so far with Zipcar has demonstrated, if nothing else, that it's a very different company.
34	Fancy sharing a car with Wacko?	http://p		u-o-c	hell is others	We've all had a bad car-share experience, but who would we absolutely hate to share a car with? Personally, I would have to say that Michael Jackson
35	Car Sharing Reduces Blood Pressure and Saves Cash	http://p		u-o-c	dependable	Naturally, you need that each of the people in your car share group are reliable, otherwise you could find yourself being late on occasions,
36	Winter update	http://p		u-o-c	single overuser	But I couldn't get a car. Somebody was using the one at Somerset and Cambridge ALL THE TIME.
37	Car-sharing	http://p		u-o-c	timed experience	Actually, "taking a drive" in a vrtucar seems like a dubious proposition to me. I've never taken one out just for that purpose. It would seem frivolous,
38	Sunday	http://p		u-c	couples sharing	Dave is working 25 hours this week at Papa Johns. We really need another car. The car sharing thing is no fun!!!!
39	Suburbs, food deserts, and old-fashioned delivery trucks	http://s		u-o-c	out to suburbs	Better-off urbanites are turning to Zipcar services (car sharing services), which they then use to make those big runs to the suburbs
40	Zipcar comes to Philadelphia with special deal for hybrid r	http://p		o-c	scalability/mergers	The two national car sharing companies, Zipcar and Flexcar, merged late last year and the transition hasn't been totally smooth.
41	Zipcar Wins Award for Putting Customers at the Center of	http://p		u-o	stats	98% believe the service is easy to use, with 94% agreeing that if they have a concern, the company will help them resolve it.
42	Car Sharing and Green Building Catching On	http://s		o-c	rates depend on ca	Not surprisingly, the more fun the car, the more expensive the rates, but those rates are also in line with the value of the vehicle.
43	Sharing in the Experience: A Look at Carpooling	http://s		u-o-c	feel smart	I drove a Toyota Prius, which was a treat in itself. I actually felt "smarter" driving that thing about town.
44	One More Thing The Internet Could Disrupt - Car Ownersh	http://c		u-c	investment idea	How about transforming the car ownership into an investment type of thing. Imagine people being able to lend their own cars
45	Are You Willing to Carshare?	http://p		u-c	status symbol	Asia might also be hard to win over to the idea of carsharing since car ownership is being touted in many Asian countries as the status symbol du jour.
46	Nothing next week, but...	http://s		u-o-c	rent & sharing	Though less convenient and more expensive than Flexcar, the experience demonstrated we don't need to rush out and buy a car.
47	Zipcar had a little party in Portland for the community	http://s		u-o	donations	The deal of the night was that if you donated your old car you got a free membership and $250 worth of driving credits
48	Zipcar had a little party in Portland for the community	http://s		u-o-c	web experience	But potential is one thing, execution another. As a customer, I have firsthand experience with how his crew have jumped all over that potential.
49	Zipcar had a little party in Portland for the community	http://c		u-o-c	lifestyle calculator	What would be brilliant, for example, is if they built a separate site that people could use to do assessments of their urban life
50	Meeting with ITS Tellus	http://s		u-o-c	distinctions	treat the vehicle in the car sharing system as a part of the entirely public transportation offer.
51	My Zipcar Horror Story	http://p		u-o-c	merger probs	I noted the merger with trepidation, and forgot about it. Weeks passed. Then, one day in December, I went to book a car and couldn't.
52	Zipcar Pros and Cons	http://p		u-c	convince friends	I love zipcar. I love the idea of it, I love its simplicity, and its low cost. I love that I can rent a car for an hour in my neighborhood,
53	Why I Love ZipCar, by Zach L.	http://p		u-c	lifestyle niche	There is a growing lifestyle concept that I feel like more and more people are trying to figure out.
54	Zip Car	http://s		u-o-c	mobile availability	The cool part of the service is that you can find available cars or trucks on the Iphone/Google mashup
55	Bring Zip Car to Fort Greene!	http://c		u-o-c	closeness map	Sure, we love Zipcar -- who doesn't? But we don't love having to walk to another neighborhood to find one.
56	Dine About Town in San Francisco	http://s		u-o-c	tourist tips	forget the profit-hungry giants whose names we all recognize. Try all you like - you won't find a better overall car rental experience.
57	Carsharing in San Francisco	http://s		u-o-c	review	We have had a wonderful experience with City Car Share. We find the car sharing concept is fully realized through the organization.
58	Cambio - A Model for US Carsharing Cooperation?	http://s		o-c	comparing models	I think the cambio model provides a model for cooperation between carshares in the US and/or Canada.

	A	B	C	D	E	F
1		web	Design	Design		data
2	Taxi videos	addr.	Spaces	Relationships	notes	piece
3			P-S-C	uc-oc-co-e		
4	Youtube					
5						
6	Nick going to work by taxis - Chennai	http://	c	u-c	tourism?	Nick going to work by taxis - Chennai
7	Definition of a Work Day: Director's Cut	http://	c	u-o-c	backup	The car doesn't start and he is late, so he gets out ans starts running. After running for a while, he sees a Taxi
8	Taxi Vlog 11	http://	p	u-o-c	driver experience	I was just in the right mood for this on, Monday starting my shift...
9	Palestinian taxi driver at checkpoint	http://	s	u-c	conversation	While sitting in a taxi at an Israeli checkpoint on our way from Jenin to Jerusalem, we began talking to the driver.
10	Cab Chronicles 2	http://	s	o-c	taxi driver pov	...go to work you BUM!
11	The Curious Incident Of The Bluetooth In The Taxi Office	http://	c	u-o	discussion	Pete and Callum argue over the possible use of bluetooth as an adjunct to sat-nav in taxi cabs
12	In a taxi office	http://	p	u-c	dispatch	sam, pissd chttin to babara in the taxi place
13	Drunk in Taxi	http://	p	u-c	drunk signing	A goodbye drink for Steve and Ana
14	Busy Taxi Office part13	http://	s	u-c	dispatch structure	Intelligent conversation concerning ghosts that taxi drivers have seen while on their travels
15	Fun in the taxi in Dubai	http://	s	u-c	music	Cool music in a taxi in Dubai
16	Arjun in the taxi to airport	http://	p	u-o	kids seat	Arjun in the taxi to airport
17	How to Deliver a Baby in the Backseat of a Taxi Cab	http://	s	u-o-c	deliver a baby	Learn tips and advice on how to deliver a baby in the backseat of a taxi cab in this free instructional video clip.
18	Sleeping in the taxi	http://	p	u-o-c	taxi hotel	An anxious and uncomfortable night at the Iraq / Jordan border hoping that Malik would get through.
19	In the taxi to NIN	http://	p	u-c	concert	me and my fat head with dave
20	The Taxi	http://	c	u-o-c	luggage	Three selfish friends learn a lesson when they try to do a good deed. Fun story, great locations in Greenwich, London.
21	In the taxi - UB smog	http://	p	u-o-c	airport 1st impress	on my way from the airport into Ulaanbaatar
22	A ride in the Gatebil Taxi	http://	s	u-o-c	high speed taxi	A ride in the Gatebil Taxi (professional driver)
23	Taxi Driver - King Lear of the Taxi	http://	c	u-o-c	theater to present	Short film about the life of a taxi driver from behind the wheel of a cab as he glances at humanity in his rear-view mirror.
24	Where are the Taxi Cabs in Vancouver ?	http://	c	u-c	question interview	People wait up to 4 hours for a Taxi Cab in Vancouver at Canada Place. Hear what a Taxi Driver has to say about the situation.
25	Taxi Drivers Should Not Be Allowed To Discriminate	http://	p	u-c	discrimination	But as public servants, they must not be allowed to discriminate against their riders.
26	Taxi Panic Attack	http://	c	u-c	backseat driver	Don't make fun of me. You've had this experience too. You were just a little more quiet and you didn't roll it on tape.
27	Taxi Cab Confessions	http://	p	u-c	crazy cab experienc	Gloria talks about her craziest cab experience.
28	Sex in a taxi!	http://	p	u-c	quickie hotel?	You heard it here first folks!
29	Free Taxi	http://	p	u-c	running from fee	Trying to get a free taxi cause we're bums :D
30	Crazy Taxi services incorperated	http://	c	u-c	emergencies only	A infomercial for a crazy taxi service
31	Taxi Service Prank	http://	p	u-c	prank	More
32	Golf Car Taxi Service	http://	c	u-o	Limousine cart	Foxy has an idea!
33	Taxi Service	http://	p	u-c	family taxi	The Hounds picking up my neighbour Pete and his Mum who had a little too much to drink after a funeral
34	Taxi Service William Jackson	http://	c	u-c	human taxi	Give this friendly cab driver a call anytime and he will pick you up and take you wherever you wanna go baby.
35	Test Drive Taxi	http://	c	u-c	video game voiceov	A drive Ishma will never forget!!!
36	March 2008 - Tyler's Legotown Taxis	http://	c	u-c	Toy taxi service	Every resort town, especially an island, needs a good taxi service to shuttle the tourists around.
37	Social Media Taxi	http://	c	u-o-c	Twitter-taxi	Perhaps the coolest example of social media tools leading to real-world connections. The Social Media Taxi story.
38	Marketing Ideas - Taxi Ads	http://	s	o-c	marketing course	Small Business Marketing Idea
39	Pedicabs Take Manhattan (trailer)	http://	p	u-o-c	bike cab	Call it a trailer or a collection of ideas for a feature length documentary about the New York pedicab industry
40	Tales of Old Man Jenkins	http://	c	u-o-c	story	Tales of Old Man Jenkins and Mrs Jingles, Episode 2 of 5
41	How to hire a Gabonese Taxi	http://	c	u-o-c	bidding&Bargain	The AfricanSurfer.com crew show how its done
42	How To Hail A Taxi in NYC	http://	p	u-o-c	hailing experience	Attempting to hail a taxi in new york city.
43	How to draw a taxi in MS. Paint	http://	c	o-c	draw a taxi	How to draw a car in MS. Paint" en youtube
44	How to get 6 ppl into a taxi :D	http://	s	u-o	6 in taxi	patheticshal.blogspot.com
45	How the meter works in a taxi.	http://	s	o-c	meter how to	Ever wonder how you get charged for your ride? Well, wonder no more, for I am here to explain it.
46	Malaysian people need wheelchair accessible taxi	http://	c	u-o-c	handicap exp.	This video clib show that how difficult disabled people in Malaysia in public transportation.
47	Stupid taxis	http://	p	u-o-c	bad driving	Taxis run havoc on South Africa's roads. Here is an example of how taxis create their own rules.
48	Money Taxi	http://	c	u-o-c	Winning taxi ride	Have you ever wanted to be on the game show Cash Cab? Watch how these three people go for a short taxi ride
49	Emotion taxi - College	http://	c	u-c	improv game	Eric and the YAs in the emotion taxi
50	Vancouver Green Taxi -Home from Italian Kitchen.	http://	s	u-o-c	quiet ride	Nonetheless, nice to ride home in a car that is - green, quiet, powerful and has a little video display of how the engine works...
51	sad taxi driver	http://	c	u-o-c	long ride	a taxi driver how to earn money
52	New York City Taxis: A Photo Slideshow	http://	c	u-o-c	driver images	daily life as a taxi driver and briefly outlines the taxi technology debate in NYC.
53	Coming to a taxi near you...	http://	c	o-c	tech overview	ew York's yellow taxis get a technology makeover.
54	Taxi Fight New York	http://	p	u-c	misunderstanding	A taxi driver gets in a fight with his passenger, the dude on the ground has a unique fighting style.
55	Taxi-Card	http://	c	u-o-c	pre-paid card sce.	Asi empezo todo !!!!
56	Check out RideCharge.com	http://	c	u-o-c	pro scenario	Cool video about new service to book taxis online and pay with your mobile phone
57						
58						

	A	B	C	D	E	F
1		web	Design	Design		data
2	Taxi images	addr.	Spaces	Relationships	notes	piece
3			P-S-C	uc-oc-co-e		
4	Flickr.com					
5						
6	Water Taxi	http://	s	o-c	other mediums	A water taxi in the Bricktown Canal in downtown Oklahoma City,
7	The Thin Yellow Line	http://	s	o-c	yellow	Brilliant yellow taxis sit parked in a line outside the Yellow Cab service in Bellingham, Washington.
8	Buddha in the cab	http://	s	o-c	driver preference	this little buddha was precariously perched on the dashboard of a Thai taxi- not the most relaxing of rides... for me at least.
9	Taxi to Hell	http://	s	u-c	long long distance	In hindsight, taking a taxi from London to Marrakesh was probably not the cheapest way to go.
10	Guys, its the last checker cab in service	http://	s	o-c	specialty retro cab	I mean you can actually flag this guy down and go from point A to B and pay the usual fare .. in a Checker Cab.
11	Mexican Taxi	http://	s	u-o-c	tourism open taxi	This is the Taxi we took all over town while in Mexico.
12	Friendly Thai taxi driver	http://	p	u-c	driver personality	A very friendly help taxi driver who went quite many rounds for quite some time at the same area to help find the way.
13	Yellow Fever	http://	c	u-o-c	slogan	One of many taxicab crashes in NYC.
14	A link to all things "New York Taxi"	http://	c	o-c	speed blur	This is an idea I had for a flickr inspiration try an fill this blur with a montage of links to different new york taxi pics
15	Girls and the Coco Taxi	http://	s	o-c	motorbike+round	The Malecon is a walkway of 9 kms along the sea in Havana. The taxi drivers never loose an occasion to whistle to pretty girls.
16	IXAT: Taxis through the Viewfinder	http://	c	o-c	reverse letters	Taxis. Those iconic yellow transporters that zip us through the city's grid. They have interesting drivers.
17	Indian Taxi Experience	http://	p	u-o-c	heat	Taken in the back of a small taxi in Delhi. The weather so hot the seats stuck to us through our clothes,
18	Cashless Taxi Experience.	http://	s	u-o	no cash	There are currently only 5000 of these cabs circulating around Seoul and we were lucky enough to catch one.
19	the bastard *#$@%%&** of a taxi driver	http://	p	u-o-c	meter & id	my first solo taxi experience ended with me standing in the street swearing (in english) at a man who didn't speak a word of englis
20	Taxi experience Cairo	http://	p	u-o	many people	
21	Beetle Taxi - Mexico City	http://	s	o-c	green and beetle	Good fun if you like near death experiences. Maybe I was unlucky, but every beetle taxi driver I had was suicidal.
22	Singapore	http://	s	o-c	creative add printin	Taking a taxi in Singapore is always an experience.
23	Before Sunset	http://	c	o-c	NYC sunset	34th Street, NYC, 1 RAW HDR
24	Entre-Deux	http://	c	o-c	sign macro	Going home after a long night - As seen on Un Taxi La Nuit
25	a Ride in The TuK TuK	http://	s	o-c	mini-bus	the (Tuk Tuk) is a traditional taxi in Thailand, i was back from shooting the amazing sunset colors
26	Taxi!	http://	s	o-c	horse and carridge	The traditional taxi service in Hasan Abdal. That is the external wall of the Sikh temple of Panja Sahib.
27	Taxi	http://	c	o-c	human taxi	This is me on my way home using the great new Taxi service after a night out at the Polo lounge;)
28	Superior Taxi Service	http://	s	o-c	chauffeur	opens door
29	VSIP: Councilatrix Cheh parks at Taxi Stand	http://	p	o-c	signs	DC Councilmembers receive special parking privileges. But should this include taking over a taxi stand at a Metro stop.
30	Dirty Service Taxi	http://	s	o-c	color = types	White SERVICE taxis serve a restricted set of destinations, with limited fares. Kind of like a very flexible bus system.
31	Yangon Int'l Airport (Taxi Service)	http://	s	o-c	airport stand	*First view
32	Taxi Service	http://	p	u-c	the wait	*Thailand
33	Bath taxi service	http://	s	o-c	carriage	Entering Bath I got stuck behind this old fashioned taxi.
34	Yellow Cab Taxi....Hummer?	http://	s	o-c	Specialty car	A Yellow Cab taxi.....Hummer. And not the H2 or H3 edition, but the full size Hummer.
35	Taxi Service	http://	p	u-c	show	drivers fighting for customers, the most bizarre people riding in the taxi, "can you pass the money to the diver?"
36	Burundi Taxi Service	http://	s	u-o	Jump on a truck	Taxi service in Burundi. Beats walking.
37	Taxi service	http://	s	u-o	motorbike	Oh the mopeds.....millions of them.
38	Taxi Service in Africa	http://	s	o-c	Bus like truck	
39	Taxi Service	http://	s	o-c	Old receipt	*all passengers insured, 25c a mile, 10c additional half-mile
40	for your convenience our taxi service	http://	p	o-c	stairs restricted acc	we will drive you wherever you like
41	Aspen Taxi Service	http://	s	o-c	Taxi uniform	Great outfit!
42	Pet Taxi	http://	s	u-c	Service for Pets	Saw this parked downtown. This is the second pet taxi service I've seen.
43	London Taxi	http://	s	o-c	Other city cab	London TX2 taxi in service with SACAB cab company in Johannesburg, South Africa.
44	London Taxi	http://	s	o-c	fleet of black	London TX2 taxis in service with Charleston Black Cab Company This company has 26 London cabs in its fleet.
45	London Taxi	http://	p	u-o-c	nice service -doors	London TX2 taxis in service with Charleston Black Cab Company This company has 26 London cabs in its fleet.
46	Iran First Women's Taxi Agency	http://	p	u-o-c	Woman only report	The first women's taxi agency started it's work in Tehran capital city.
47	My First New York Taxi with GPS	http://	s	u-o-c	Features	This is my first cab ride with a GPS installed. It is so cool, I had to take a photo.
48	Taxi Servicing	http://	p	o-c	Repair	The High Line is a remnant of an old train line used to take cargo
49	Conde S.A.	http://	c	o-c	taxi filled in grass	Art work / Expo Arte, Mexico City / Ciudad de Mexico
50	Cabs never stop when you need one	http://	p	u-o-c	contrast timing	Hailing a taxi outside Radio City Music Hall in New York City I have no idea who this woman is.
51	Gas Station	http://	p	u-o-c	user shouldn't wait	When we saw this taxi cab, Devon said, "we NEED to get a photo of this." Such a great idea - the colors are amazing.
52	What Were The Chances?	http://	c	u-o	driver-user contrast	Unique, portrayal of a cat and mouse in a taxi.
53	Taxi Face	http://	c	u-c	driver grimace	my taxi driver was talking with the cab in the next lane - I was snapping photos... and this guy made a GREAT face.
54	Black cab with funny advert.	http://	s	u-o-c	creative add printin	I spotted this black cab decorated with a funny advert.
55	my sunny yellow collage for yellow day!	http://	c	o-c	yellow references	In some countries, taxicabs are commonly yellow, alleging that yellow is the color most easily seen at a distance.
56	Heee Taxi!	http://	c	o-c	POV	It's a litle bit photoshopped because there were some people in the corner leftunder.
57	waiting for a cab	http://	c	u-c	waiting in furniture	Whilst waiting to hail a black cab I thought it would be quite a laugh to get Laura to sit on one of our chairs
58	hailing a cab	http://	p	u-o-c	attention getting	

	A	B	C	D	E	F
1		web	Design	Design		data
2	Taxi blogs	addr.	Spaces	Relationships	notes	piece
3			P-S-C	uc-oc-co-e		
4	Flickr.com					
5						
6	Betty	http://	p	u-c	elderly exercise	My wife once asked her why she walked to the bus stop every day, instead of taking a taxi to work.
7	Singapore Taxi to rise up to 49%	http://	c	u-c	pros-cons	Singapore workers are complaining on the high expenses of taking a taxi to work and taxi drivers are complaining of earning less
8	A new rant....	http://	p	u-c	safer driving no res	I was in one car and the owner only got his license a few weeks before. Cars were buzzing by us at a crazy rate and it scared the
9	Woza 2010	http://	s	u-o-c	front seat pays carc	Now any one can sit in front seat. I took the front seat, which I vowed I would never take after I made a mass in a taxi.
10	Luck has nothing to do with it.	http://	p	u-o-c	accidents	if he just stopped or looked to the left before he pulled out in those cars.. he would have seen those cars coming. I didnt die today
11	Back to Japan	http://	s	u-c	free taxi with hotel	instead of taking a free taxi to work and back, I now had to navigate the Tokyo rail
12	Taxi to work	http://	s	u-c	splitting groups	One asked me if I would be interested in splitting a taxi. I thought it was a good idea and joined them.
13	One of Those Days	http://	p	u-c	happy for safety	I took the taxi to work this morning as always. And as the taxi was on the overpass, we saw a car up ahead that had stopped,
14	I would step out, and the Real World begins.	http://	c	u-o-c	experience told	I like taxi rides in the morning. I would gaze outside the window and listen to songs on my Ipod or my cellular phone.
15	Taxi!	http://	p	u-c	trust, not knowing	I don't if he knows where I actually want to go. I trust this man each day more than I have trusted anyone in my life.
16	Taxi Driver	http://	p	u-c	identity	Today I had to get a taxi to work. The local company has recently implemented automatic number recognition software.
17	So Happy ^^ I Receive Presents from Ken ^^	http://	p	u-c	expensive	I just hope my car is ok soon. I feel its so expensive to take taxi to work everyday and taking taxi is not safe too.
18	9.04	http://	p	u-c	no matter time	i left the house 20minutes later than usual. taxi to work.
19	Getting a Driving Licence in Singapore	http://	p	u-c	taxi $ = car$	I took taxi to work and back home everyday and the daily expenses would not have been more than if I were to own a car.
20	Cab to Work	http://	p	u-c	failiure when cab	2 days before, believe it or not, I took the taxi to work. That stupid bus did not stop and I was way too late already.
21	It's a rubber washer. That's all you need	http://	p	u-c	Money paying	I was thinking to myself in the taxi to work this morning how I keep mis-calculating how much money here is worth in the real worlc
22	SAINT LOUIS!!	http://	s	u-c	special route	Afterwards I went to meet up with Jess to go to the beach. In order to get There is a stop for taxi who go to the beach.
23	Tired-- super. Very.	http://	p	u-c	not affecting	I have been taking taxi to work. Haha. But from April 16, I have to join in the morning crowd and catch the bus/train.
24	My Complicate Life ©	http://	p	u-c	almost though of ta	screw the bus. jam packed bus. almost got off the wrong bus stop. *thoughts of taking the taxi to work everyday crosses mind*
25	Faith Is for Wimps	http://	p	u-c	shared responsa	If you decide to take a taxi to work, you will have to trust your life to the vehicle and the taxi driver,
26	Abu Dhabi residents unhappy with new taxi service	http://	p	u-c	radical change	Most of those spoken to were unanimous in their views that the taxis' fares had doubled
27	Amy -Butt-head- Winehouse	http://	p	u-o	men for women	a gentleman hailing a taxi on your behalf.
28	Commuters on the streets can now hail taxis by SMS	http://	s	u-o	technology	Passengers in Dubai no longer have to go through the daunting task of hailing a taxi on the road as they can now call one
29	Getting Lost in Fes	http://	s	u-o	taxi educator	So we decided to set out on foot rather than hailing another taxi and being forever dependent on them for rides.
30	A Taxi for the Next Hundred Years	http://	c	u-o-c	resumer	innovations like cell-phone hailing, smart taxi stands, taxi lanes, a more energy-efficient fleet, benefit owners and users alike.
31	Flight of Children (4 - The Arrival)	http://	p	u-o-c	super demand	There must' have been 120 people hailing 20 taxis at that otherwise empty train station
32	Dubai: In With The New...	http://	p	u-c	honest driver	the driver announced that a cab would be too pricey and recommended that we head to a restaurant within walking distance.
33	Bransons cab	http://	p	u-c	no VIP taxi	After dining with some Virgin execs, the charismatic business man tried, without success, to nab a cab about 1am on Saturday.
34	A different kind of People	http://	p	u-c	unfair split	After Alan and I wrap things up, he and I split a cab again (and Alan, you've got to quit giving me $20 for your $5 cab ride!).
35	All-Righttttt!	http://	p	u-o	Mutliple stops	Eventually we hailed a cab sometime after ten pm, and they decided to ask the taxi driver to stop at the quicky marts
36	Split A Cab service launches in New York City	http://	s	u-o-c	service for sharing	add the time, date and location of their journey to the website, and if other travelers sign up to jump in the same cab
37	Rock Around the Clock	http://	p	u-o-c	meet when split	it was a new experience for me to have to introduce myself for the first time to someone sitting on my lap.
38	Pay Day... Or Not.	http://	p	u-o-c	first out better	Michelle and I split a cab, this time dropping me off first. I like that much better.
39	Cab Share to Laguardia	http://	c	u-o-c	Entry for share	So if anyone wants to split a cab to Laguardia this Friday Save us both some cash and join me.
40	Taxi Fee.... :(	http://	p	u-o	This month's fee	I hate taking a taxi except there is someone paying for me. :(
41	If this song were a day, what a day that would be	http://	p	u-o-c	sports taxi	I want to go shopping or play soccer, but I hate taking a taxi all the way to Golden Gate park.
42	100 Statements	http://	p	u-c	user profile	43. I have at least one scar. 44. I love taking a taxi.
43	Why I love taking a cab home	http://	p	u-o-c	luxe, no thinking	Plus, I love taking cabs. It's so luxurious. Someone else drives you. It's fucking wonderful.
44	A Tale of One City	http://	p	u-c	driver conversations	I love taking a cab to an old part of the city and listening to the taxi drivers' conversation.
45	GABY DELA MERCED	http://	p	u-o-c	speed experience	And I love it. No wonder I love taking a cab albeit the heavy dust i receive from traveling. It's good when you feel the speed.
46	If you want to change the radio station, just go somewher	http://	s	u-o-c	late = cab	I hopped into a cab. I hate taking a cab and spending the money solely because I am running late.
47	I really hate flying.	http://	p	u-c	flight plight	I hate taking a cab. I hate lugging every thing to the car on the other side of the parking lot
48	I Hate Airplanes	http://	p	u-c	cab part of airport	Don't get me wrong, I also hate airline travel. I hate taking a cab or the bus to the airport. I hate waiting in security lines.
49	oy i can't sleep.	http://	p	u-c	not worth the $	i need to go to the gym. i have to take a cab to ww this week. i hate taking a cab. it's not worth the money. i need a better job.
50	MEXICO - MEXICO CITY	http://	p	u-c	independence	I hate taking a cab. I always think that wherever it is that I need to go, I can always get there under my own steam.
51	and it's winter.	http://	p	u-o-c	why Walk to cab	I hate taking a cab because it's too cold to walk 8 blocks.
52	Of hot tea and car sickness	http://	p	u-o	back seat woes	Riding in the back seat of a car (which is why I hate taking a cab to the airport) Backseats absolutely kill me.
53	28~12~2006	http://	p	u-c	late night = cab	went out till really late like 2a.m...i hate taking a cab!!!
54	My hates and worries about work	http://	s	u-c	Cab = regularity	I hate taking a cab each morning just to prevent me from being late for work
55	Best Cab Ride EVER	http://	s	u-c	driver = ride	He SANG for me. Elvis Presley done by a retiree Korean cab driver?
56	The Ex Factor	http://	p	u-c	driver changes price	I hate taking a cab, especially because cabs in DC are ridiculous. They make up prices and take advantage of us girls
57						
58						

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